

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1913.

No. 548.

THE UNITED STATES OF AMERICA, PETITIONER,

VS.

LEXINGTON MILL AND ELEVATOR COMPANY.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE EIGHTH CIRCUIT.

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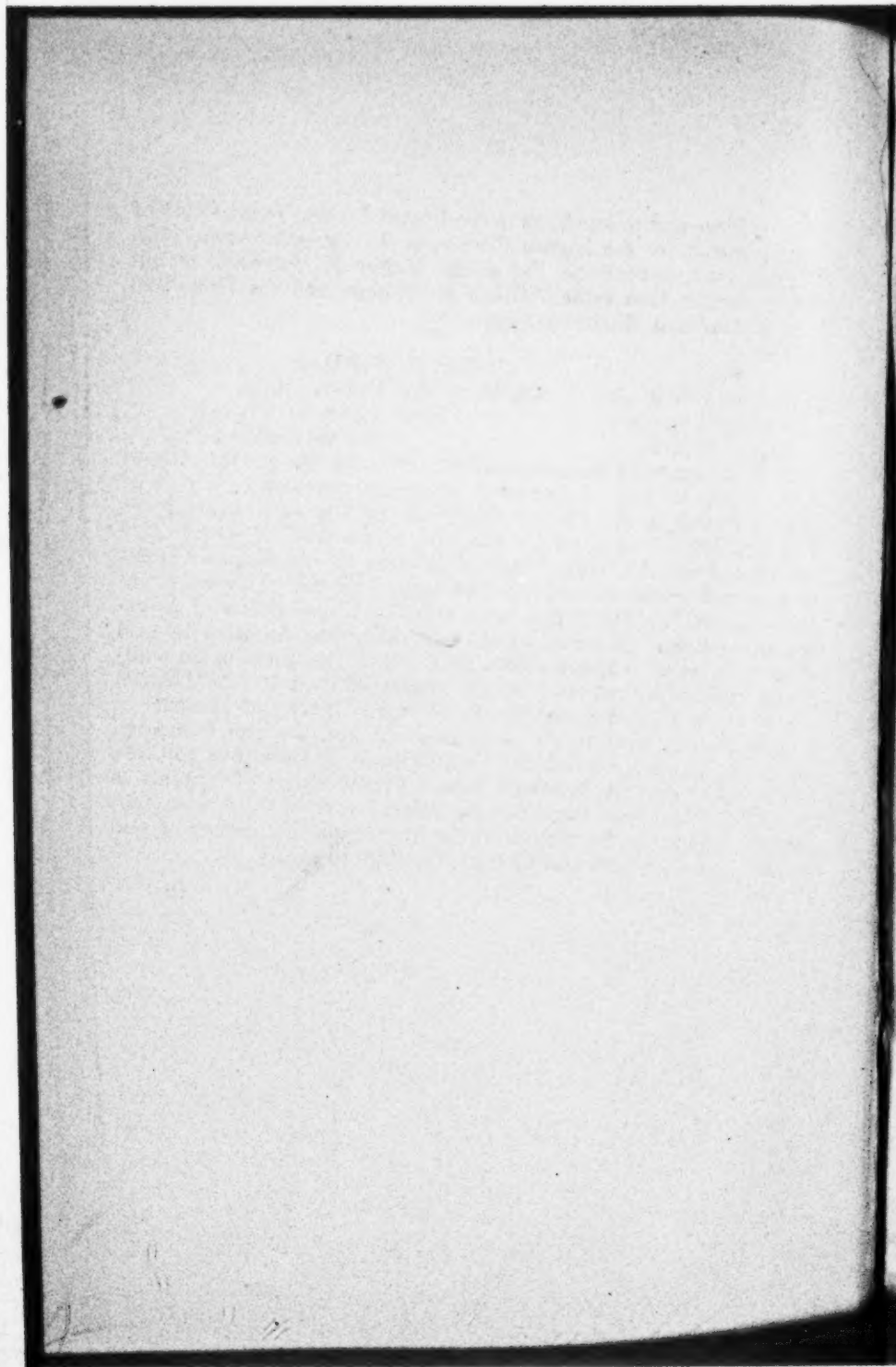
a Pleas and proceedings in the United States Circuit Court of Appeals for the Eighth Circuit, at the December term, 1912, of said court, before the Honorable Walter H. Sanborn, circuit judge, and the Honorable William H. Munger and the Honorable John A. Marshall, district judges.

Attest:

Seal
United States Circuit
Court of Appeals
Eighth Circuit

JOHN D. JORDAN,
Clerk of the United States
Circuit Court of Appeals
for the Eighth Circuit.

Be it remembered that heretofore, to wit, on the seventh day of January, A. D. 1911, a transcript of record, pursuant to a writ of error directed to the District Court of the United States for the Western District of Missouri, was filed in the office of the clerk of the United States Circuit Court of Appeals for the Eighth Circuit in a certain cause wherein the Lexington Mill and Elevator Company, claimant, is plaintiff in error and The United States of America is defendant in error, which said cause was docketed in said Circuit Court of Appeals as No. 3533, which also contains an additional transcript, pursuant to an appeal allowed by the District Court of the United States for the Western District of Missouri in a certain cause, wherein the Lexington Mill and Elevator Company, claimant, is appellant, and The United States of America is appellee, which said cause was docketed in said Circuit Court of Appeals as No. 3534, which said transcript, as printed pursuant to the stipulation of the parties for the use of the court upon the hearing of said causes, is in the words and figures following, to wit:



a United States Circuit Court of Appeals for the Eighth
Circuit.

Lexington Mill & Elevator Company, Claimant, Plaintiff in
Error,

No. 3533. vs.

United States of America, Defendant in Error,

And

Lexington Mill & Elevator Company, Claimant, Appellant,

No. 3534. vs.

United States of America, Appellee.

Stipulation.

Whereas, the record proper in the above entitled causes contains a copy of the motion for new trial; motion in arrest of judgment, notice of writ of error and appeal; order as to time for presenting motions for new trial and in arrest of judgment; affidavits in support of motion for new trial; stipulation to destroy perishable exhibits, etc.; order extending time for hearing on motion for new trial, etc.; consent of libellant to modification of judgment, etc.; and objections of libellant to settlement of bill of exceptions.

b And Whereas, each of the above mentioned matters appears in full in the bill of exceptions, which is a part of the transcript.

Therefore, it is now here stipulated and agreed for the purpose of avoiding duplication, that the foregoing matters shall be printed where they appear in the bill of exceptions, but shall be omitted where they appear at pages sixty-two to one hundred and twenty, inclusive, of the transcript.

E. L. SCARRITT,

Of counsel for plaintiff in error, and appellant.

LESLIE J. LYONS,

United States Attorney.

No. 3533. Lexington Mill and Elevator Co., Claimant, Plaintiff in Error, vs. United States of America. No. 3534. Lexington Mill and Elevator Co., Claimant, Appellant, vs. United States of America. Stipulation to omit certain portion of transcript of record from printed record. Filed Jan. 18, 1911.

John D. Jordan, Clerk.

c

Citation.

In the United States District Court for the Western
Division of the Western District of Missouri.

United States of America,

No. 285. vs.

Six Hundred and Twenty-five (625) Sacks of Flour, Lexington
Mill & Elevator Company, Claimant.

United States of America—*sct.*

To the United States of America, Mr. Pierce Butler, Special
Counsel, and Mr. Leslie J. Lyons, District Attorney—
Greeting:

You, and each of you, are hereby cited and admonished to
be and appear in the United States Circuit Court of Appeals
for the Eighth Circuit at the City of St. Louis, Missouri, sixty
days from and after the day this citation bears date, pursuant
to a writ of error filed in the Clerk's office of the District
Court of the United States for the Western Division of the
Western District of Missouri, wherein the Lexington Mill and
Elevator Company, a corporation, claimant and defendant in
the above entitled cause, is plaintiff in error, and you are de-
fendants in error, to show cause, if any there be, why the judg-
ment and decree rendered against the said plaintiff in error
and its property, as in said writ of error mentioned, should
not be corrected, and why speedy justice should not be done
the parties in that behalf.

Witness the Honorable Smith McPherson, Judge of the Dis-
trict Court of the United States for the Western Divi-
sion of the Western District of Missouri, this 11th day
of November, in the year of Our Lord, 1910.

SMITH MCPHERSON, Judge.

d Service of the within citation accepted, this November
11th, 1910.

PIERCE BUTLER,
LESLIE J. LYONS,

United States Attorney and Special Asst.
Atty. General.

Approved and allowed:

SMITH MCPHERSON, Judge.

No. 285. United States of America vs. Six Hundred Twenty-
five Sacks of Flour, Lexington Mill & Elevator Co. Filed Nov.
11, 1910. Howard N. McCreary, Clerk. Scarritt, Scarritt, &
Jones, Attorneys at Law, Scarritt Bldg., Kansas City, Mo.

e United States of America—set.

The President of the United States of America to the Honorable Judge of the District Court of the United States for the Western Division of the Western District of Missouri—Greeting:

Because, in the records and proceedings, as also in the rendition of the judgment of a plea which is in the said District Court before you, at the April Term, 1910, thereof, between United States of America and Six hundred and twenty-five (625) sacks of flour and the Lexington Mill and Elevator Company (a Corporation), Claimant and defendant, a manifest error hath happened, to the great damage of the said flour and to the said Claimant and defendant Lexington Mill and Elevator Company, as by its complaint appears.

We being willing that error, if any hath been, should be duly corrected, and full and speedy justice done to the parties aforesaid in this behalf, do command you, if judgment be therein given, that then, under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the United States Circuit Court of Appeals, for the Eighth Circuit, together with this writ, so that you have the said record and proceedings aforesaid at the City of St. Louis, Missouri, and filed in the office of the Clerk of the United States Circuit Court of Appeals, for the Eighth Circuit, on or before the tenth day of January, 1911, to the end that the record and proceedings aforesaid being inspected, the United States Circuit Court of Appeals may cause further to be done therein to correct that error, what of right, and according to the laws and customs of the United States, should be done.

Witness, The Honorable John M. Harlan, Senior Associate Justice of the Supreme Court of the United States, and the seal of the Circuit Court of the Western Division of the Western District of Missouri.

Seal
U. S. Circuit Court
Western Division
Western District
Missouri.

Issued at office in Kansas City, this 11th day of November, in the year of our Lord one thousand nine hundred and ten.

ADELAIDE UTTER,
Clerk of the Circuit Court of the United States for the Western Division of the Western District of Missouri.

Allowed by SMITH MCPHERSON, Judge.

United States of America,
Western Division of the Western
District of Missouri—set.

In obedience to the command of the within Writ, I herewith transmit to the United States Circuit Court of Appeals, a duly certified transcript of the record and proceedings in the within entitled case, and with all things concerning the same, except exhibits heretofore destroyed by stipulation and order of court.

In Witness Whereof, I hereto subscribe my name and affix the seal of said District Court of the United States for the Western Division of the Western District of Missouri.

Issued at office in Kansas City, this 6th
day of January, A. D. 1911.

Seal

U. S. District Court
Western Division
Western District
Missouri.

HOWARD N. MCCREARY,
Clerk.
By D. C.

United States District Court, Western District of Missouri, Western Division. United States of America, vs. Six hundred twenty five sacks of flour, Lexington Mill & Elevator Company, Claimant and defendant. Writ of Error. Filed November 11th, 1910. Howard N. McCreary, Clerk.

f

Citation.

In the United States District Court for the Western
Division of the Western District of Missouri.

United States of America,
No. 285. vs.

Six Hundred and Twenty-five (625) Sacks of Flour.
Lexington Mill & Elevator Company, Claimant.

United States of America,—Sct.

The President of the United States to United States of America,
and to Mr. Pierce Butler, Special Counsel, and Mr.
Leslie J. Lyons, United States District Attorney,—
Greeting:

You and each of you are hereby cited and admonished to be and appear at the United States Circuit Court of Appeals for the Eighth Circuit at the City of St. Louis, Missouri, sixty days from and after the day this citation bears date, pursuant to an order allowing an appeal duly entered, filed and of record in the Clerk's office of the District Court of the United States

for the Western Division of the Western District of Missouri, wherein Lexington Mill & Elevator Company is appellant, and you are appellee, to show cause, if any there be, why the decree and judgment rendered against the said appellant as in said appeal and in the said order allowing said appeal mentioned should not be corrected and why speedy justice should not be done to the parties in that behalf.

Witness the Honorable Judge of the District Court of the United States for the Western Division of the Western District of Missouri this 17th day of December in the year of our Lord, 1910.

ARBA S. VAN VALKENBURGH, Judge.

SMITH McPHERSON, Judge.

g We hereby acknowledge due service of the within citation this 17th day of December, 1910.

PIERCE BUTLER and
LESLIE J. LYONS,

Attorneys for Libellant and Appellee.

No. 285. United States of America, vs. Six Hundred and Twenty-Five Sacks of Flour. Lexington Mill & Elevator Co. Claimant. Citation. Filed Dec. 17, 1910, Howard N. McCreery, Clerk. Scarritt, Scarritt & Jones, Attorneys at law.

h In the United States District Court for the Western Division of the Western District of Missouri.

United States of America,

No. 285. vs.

Six Hundred and Twenty-five (625) Sacks of Flour.

Lexington Mill & Elevator Company, Claimant.

Order Allowing Appeal.

On this 17th day of December, 1910, upon the petition for appeal of claimant and appellant, Lexington Mill & Elevator Company, and application therefor, with assignment of errors filed therewith, on this day, praying for the allowance of an appeal in the above entitled cause to the United States Circuit Court of Appeals for the Eighth Circuit, all parties appearing by their respective attorneys, and it appearing to the court that said appellant has filed on November 11, 1910, its assignment of errors as required by the rules of the Circuit Court of Appeals for the Eighth Circuit, and has duly served and filed notice of appeal herein.

It is ordered that the said appeal be and the same is allowed as prayed for, and it is further ordered that a supersedeas bond on said appeal be and the same is hereby fixed in the sum of \$2500.00; which said bond is now filed, signed by said appellant Lexington Mill & Elevator Company as principal, and America Surety Company of New York, a surety company, as surety; which bond and surety are now approved by the court and said bond is ordered to be filed and made a part of the record in this cause, and it is further ordered that the said bond shall operate and be a supersedeas bond and shall stay all further proceedings with reference to the judgment and decree in this cause during the pendency of this appeal in the United States Circuit Court of Appeals for the Eighth Judicial Circuit.

And it is ordered that a writ of citation issue in accordance with the allowance of this appeal, which said citation is now and here issued. Thereupon the said claimant and defendant and appellant, Lexington Mill & Elevator Company, files and duly serves in open court the libellant and its attorneys with the citation herein allowed and ordered, which citation is duly accepted by said libellant and its attorneys.

Dated 17th, 1910.

SMITH McPHERSON,
ARBA S. VAN VALKENBURGH, Judges.

1 United States of America—*scd.*

Be It Remembered, That heretofore, to-wit, at the regular November Term of the United States District Court for the Western Division of the Western District of Missouri, and on the 9th day of April, 1910, the following entry appears of record, to-wit:

United States
No. 285. vs.
Six Hundred Twenty-five Sacks of Flour.

This day comes A. S. Van Valkenburgh, United States District Attorney, who prosecutes on behalf of the United States, and by leave of Court files a libel herein, whereupon a warrant of seizure is issued and delivered to the Marshal, returnable on the 30th day of April, 1910, at ten o'clock in the forenoon.

Said Libel, filed April 9th, 1910, is in words and figures as follows, to-wit:

2 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America

vs.

Six Hundred and Twenty-five (625) Sacks of Flour.

The United States of America, by Arba S. Van Valkenburgh, United States Attorney for the Western District of Missouri, who prosecutes for and on behalf of the United States of America, hereby gives the court to understand and be informed that there are now in the possession of and held by B. O. Terry, of Castle, Sullivan County, Missouri, certain original unbroken packages and sacks each containing forty-eight (48) pounds more or less of flour; that said flour so contained in said packages and sacks is adulterated within the meaning of the Act approved June 30, 1906, entitled "An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes."

And the United States Attorney aforesaid, further gives the court to understand and be informed that said packages and sacks of flour consist of six hundred and twenty-five (625) sacks or packages, each containing forty-eight (48) pounds more or less of flour, branded and labeled as follows, to-wit: L 48 Pounds Lexington Cream X X X X X Fancy Patent. This Flour is Made of Finest Quality Hard Wheat. Lexington Cream. Lexington, Nebraska, Lexington Mill and Elevator Company", and were received by the said B. O. Terry, as aforesaid, on or about the 7th day of April, A. D. 1910, from

3 the Lexington Mill and Elevator Company, a corporation duly organized and existing under and by virtue of law, and engaged in the manufacture and sale of flour and other food products at Lexington, in the State of Nebraska; that the same were sold and shipped to the said B. O. Terry, of Castle, Sullivan County, Missouri, by the said Lexington Mill and Elevator Company, a corporation as aforesaid, of Lexington, Nebraska, on or about the 1st day of April, A. D. 1910, and were sent by common carriers engaged in interstate commerce, to-wit, from Lexington, in the state of Nebraska, to Council Bluffs, in the State of Iowa, over the Union Pacific Railway Company, and by it delivered to the Chicago, Burlington & Quincy Railroad Company at Council Bluffs, Iowa, and by it carried to Osborn, in the State of Missouri, and there delivered to the Quincy, Omaha and Kansas City Railroad Company, from which point said Quincy, Omaha and Kansas City Railroad Company transported said shipment to Castle, Sullivan County, Missouri, and there delivered the same to the said B. O. Terry; that all of said railroads are

common carrier corporations engaged in interstate commerce between the States of Nebraska, Iowa and Missouri, and among the other states and territories of the United States.

The United States Attorney aforesaid, further gives the court to understand and be informed that the flour so contained in said packages and sacks as aforesaid was and is adulterated in the following manner, to-wit:

(a) That said flour was and is mixed and packed with another substance, to-wit, peroxide of nitrogen, so as to reduce and lower and injuriously affect its quality and strength.

(b) That said flour was and is mixed, colored and stained with another substance, to-wit, peroxide of nitrogen in a manner whereby damage and inferiority was and is concealed.

(c) That said flour contains an added poisonous substance and added deleterious ingredient, to-wit, peroxide of nitrogen, which rendered and renders said flour injurious to
4 health.

(d) That said flour was subjected to a treatment whereby said peroxide of nitrogen was mixed and packed in and added to said flour in such a manner as to render said flour deleterious to health; that the said adulteration of said flour in the manner and by the method aforesaid was designed and intended to defraud and deceive, as aforesaid, and constitutes an adulteration of the contents of said packages and sacks, as aforesaid, in violation of said law.

Wherefore, it is prayed that process issue and that the United States Marshal of this district be commanded by order of this court to seize the packages and sacks of flour aforesaid for confiscation, destruction or sale, and the same hold to be dealt with as this Honorable Court may order and determine.

A. S. VAN VALKENBURGH,
United States Attorney.

5 On the said 9th day of April, 1910, the following order appears of record, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America

vs.

Six Hundred and Twenty-five (625) Sacks of Flour.

Order.

Now on this day comes A. S. Van Valkenburgh, United States Attorney, for the Western District of Missouri, and

presents to the Court an information and complaint of the United States against Six Hundred and Twenty-five (625) Sacks of Flour, property therein described, and now in the possession of B. O. Terry, of Castle, Sullivan County, Missouri, praying that the said goods may be seized for confiscation, destruction or sale and may be held to be dealt with as this court may order and determine, and that the usual process and monition of the court in that behalf be made,—

And the Court having considered said complaint and application and being fully advised in the premises, doth order that so much of the said goods as may still be in the original packages charged to have been adulterated shall be seized by the Marshal of this district and that the usual process and monition of the court be issued by the Clerk of this court for the Western Division of the Western District of Missouri, and that the Marshal of this court shall publish a citation giving notice generally unto all persons having or pretending to have any right, title or interest in said property to appear before this court in the city of Kansas City, Jackson County,

Missouri, in said Division and District, on the 30th day 6 of April, next, if it be a court day, or else on the next court day thereafter, at ten o'clock in the forenoon of said day, then and there to make known their claims and allegations in said matter, and that the said Marshal publish said citation for at least fifteen (15) days, exclusive of Sundays, prior to said return day in the Kansas City Journal, a daily newspaper published and printed in Kansas City, Missouri, aforesaid, and within the Division and District in which said property is situated.

JNO. F. PHILIPS, Judge.

Kansas City, Missouri, April 9, 1910.

7 The Warrant issued by the Clerk of said Court, April 9th, 1910, is in words and figures as follows, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America

VS.

Six Hundred and Twenty-five (625) Sacks of Flour.

The President of the United States of America to the Marshal of the Western District of Missouri—Greeting:

Whereas, an information has been filed in the District Court of the United States for the Western Division of the Western District of Missouri, on the 9th day of April, A. D. 1910, by A. S. Van Valkenburgh, United States Attorney for the Western District of Missouri, on behalf of the United States of

America, against certain property, goods, wares, and merchandise, to-wit: Six Hundred and Twenty-five (625) Sacks of Flour, each containing 48 pounds, more or less, for the reasons and causes in said information mentioned, and praying the usual process and monition of the said court in that behalf to be made, and that all persons interested in the said property may be cited in general and special to answer the premises, and all proceedings being had that said property may for the causes in said information mentioned be condemned, destroyed, and dealt with according to law,—

You are, therefore, hereby commanded to attach the said property and to detain the same in your custody until the further order of the court respecting the same and to give due notice to all persons claiming the same, or owning or having anything to say why the same should not be confiscated, destroyed or sold pursuant to the prayer of said information, that they be and appear before the said court to be held in and for the Western Division of the Western District of Missouri, 25th day of April, A. D. 1910, at ten o'clock in the forenoon of the same day, if the same shall be a day of jurisdiction, otherwise on the next day of jurisdiction there-

8 after, then and there to interpose a claim for the same, and to make all allegations in that behalf, and what you shall have done in the premises do you then and there make return thereof, together with this writ.

Witness the Honorable John F. Philips, Judge of said Court, and the seal thereof hereto affixed, at Kansas City, in said District, on the 9th day of April, A. D. 1910.

(Seal)

HOWARD N. McCREARY, Clerk.

On the 12th day of April, 1910, the said Warrant was returned by the Marshal with his return thereon, in words and figures as follows, to-wit:

I executed the within warrant in Green Castle, Sullivan County, Missouri, on April 11, 1910, by seizing 597 sacks of flour as within described and storing them subject to the further order of the Court.

All done in the Western Division of the Western District of Missouri.

E. R. DURHAM,

U. S. Marshal.

By H. C. Miller, Deputy.

Marshal's fees.

1 service 2.00

Expenses 10.30

Total \$12.30

16 On the 18th day of May, 1910, the Demand of Claimant for Jury is filed and is in words and figures as follows, to-wit:

In the District Court of the United States, for the Western Division of the Western District of the State of Missouri.

United States of America, Libellant,
vs.
Six Hundred Twenty-five Sacks of Flour.
Demand for Jury.

To the Honorable, the Judge of the District Court of the United States, for the Western District of the State of Missouri:

Comes now the Lexington Mill & Elevator Company, claimant and answering defendant herein, and files this its demand for a jury to try the issues of fact in the above entitled cause.

LEXINGTON MILL & ELEVATOR
COMPANY,

By Ed. P. Smith, Bruce S. Elliott, Its Attorneys.

17 On the 19th day of May, 1910, the following entry appears of record, to-wit:

United States
No. 285. vs.
Six Hundred and Twenty-five Sacks of Flour.

This day comes A. S. Van Valkenburgh, United States Attorney, and by leave of Court files an amended libel in this cause.

Said Amended Libel, filed May 19th, 1910, is in words and figures as follows, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,
vs.
Six Hundred and Twenty-five (625) Sacks of Flour.

Amended Libel.

The United States of America, by Arba S. Van Valkenburgh, United States Attorney for the Western District of Missouri, who prosecutes for and on behalf of the United States of

America, hereby gives the court to understand and be informed that there are now in the possession of and held by B. O. Terry, of Castle, Sullivan County, Missouri, certain original unbroken packages and sacks each containing forty-eight (48) pounds more or less of flour; that said flour so contained in said packages and sacks is adulterated within the meaning of the Act approved June 30, 1906, entitled "An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes."

18 And the United States Attorney aforesaid, further gives the court to understand and be informed that said packages and sacks of flour consist of six hundred and twenty-five (625) sacks or packages, each containing forty-eight (48) pounds more or less of flour, branded and labeled as follows, to-wit: "L 48 Pounds Lexington Cream X X X X X Fancy Patent. This Flour is Made of First Quality Hard Wheat. Lexington Cream. Lexington, Nebraska, Lexington Mill and Elevator Company", and were received by the said B. O. Terry, as aforesaid, on or about the 7th day of April, A. D. 1910, from the Lexington Mill and Elevator Company, a corporation duly organized and existing under and by virtue of law, and engaged in the manufacture and sale of flour and other food products at Lexington, in the State of Nebraska; that the same were sold and shipped to the said B. O. Terry, of Castle, Sullivan County, Missouri, by the said Lexington Mill and Elevator Company, a corporation as aforesaid, of Lexington, Nebraska, on or about the 1st day of April, A. D. 1910, and were sent by common carriers engaged in interstate commerce, to-wit, from Lexington, in the State of Nebraska, to Council Bluffs, in the State of Iowa, over the Union Pacific Railway Company, and by it delivered to the Chicago, Burlington & Quincy Railroad Company at Council Bluffs, Iowa, and by it carried to Osborn, in the State of Missouri, and there delivered to the Quincy, Omaha, and Kansas City Railroad Company, from which point said Quincy, Omaha and Kansas City Railroad Company transported said shipment to Castle, Sullivan County, Missouri, and there delivered the same to the said B. O. Terry; that all of said railroads are common carrier corporations engaged in interstate commerce between the States of Nebraska, Iowa, and Missouri, and among the other states and territories of the United States.

The United States Attorney aforesaid further gives the Court to understand and be informed that the flour so contained in said packages and sacks as aforesaid was treated by a process for the bleaching of flour known as the Alsop Process, which

19 said process consists of the generation by means of electricity of nitrogen peroxide gas, which is mixed with atmospheric air, and the mixture brought into contact with the flour; and your libelant charges that by this treatment the flour contained in said six hundred and twenty-five (625) sacks, and each and every part thereof, has been caused to be adulterated within the meaning of the Act of Congress, in the following manner and particulars, to-wit:

(a) In that a substance known as nitrites or nitrite reacting material has been mixed and packed with the said flour so as to reduce and lower and injuriously affect its quality and strength, in these respects, among others, namely: That the capacity of the said flour to change and improve, as it would have changed and improved if aged and conditioned by natural processes, has been destroyed; that by direct action the elasticity of the gluten has been lessened and impaired, so as to injuriously affect the bread-making qualities of the flour; that by direct action other ingredients of the said flour have been injuriously affected, so as to reduce, lower and impair its bread-making qualities.

(b) In that by the treatment as aforesaid the said flour has been mixed, colored and stained in a manner whereby damage and inferiority is concealed in these respects, among others, namely: That the inferiority of freshness or newness [as] inferiority which is present in flour made from new wheat or in flour freshly milled from wheat that is either old or new, and an inferiority which manifests itself, among other things, in inferiorities of color, of elasticity of gluten, and of the quality of other ingredients which affect its value for bread-making purposes, is thereby concealed; and that said flour has been caused to simulate the appearance of flour made from wheat which has been properly aged and conditioned by natural processes and of flour which has been properly aged and conditioned by natural processes, after being milled from wheat that is either old or new; and this treatment by the Alsop Process, as aforesaid, has concealed the inferiority of said flour, and has
20 given it the appearance of a better grade of flour than it really is.

And further, that the flour contained in said six hundred and twenty-five (625) sacks, and treated by the Alsop Process as aforesaid, was when milled, and now is, of a grade of flour inferior to a patent flour, and was when milled, and now is, of a grade of flour inferior to the grade known as finest quality of hard wheat; and that the said flour, inferior in these respects, has been caused to have the appearance of a patent flour and of flour made from the finest quality of hard wheat,

and thereby the inferiority contained in said flour was and is concealed, and in other respects also the inferiority of said flour was and is concealed.

(c) In that by the treatment as aforesaid the said flour has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite re-acting material, nitrogen peroxide, nitrous acid, nitric acid and other poisonous and deleterious substances, which may render said flour injurious to the health.

The United States Attorney aforesaid further gives the Court to understand and be informed that the flour contained in the aforesaid packages and sacks was and is misbranded within the meaning and intent of the act of Congress of June 30, 1906, in the following manner and particulars, to-wit:

(a) First, in this, that the packages and sacks containing such flour were labeled as aforesaid, "L. 48 Pounds, Lexington Cream X X X X X Fancy Patent. This Flour is made of first quality hard wheat. Lexington Cream. Lexington, Nebraska, Lexington Mill and Elevator Company"; that in truth and in fact a patent flour is and is known and recognized to be the best grade of flour, and consists only of that portion of the flour content of the wheat known as the middlings; and your libellant charges that the flour, contained in said sacks is not a patent flour, but is a grade and quality of flour inferior to a patent flour, being a mixture of the middlings, together with a commercially inferior grade of flour, and a flour which
21 before bleaching was darker in color than a patent flour, and inferior in grade, quality and strength to a patent flour, and that this mixture shipped into Missouri and labeled as aforesaid was sold under the distinctive name of another article than itself, and was labeled as aforesaid so as to deceive and mislead the purchaser, in the respect that it purported to be a patent flour, whereas in truth and in fact it was not a patent flour.

(b) Second, in this, that the sacks containing said flour were labeled as aforesaid, "L. 48 Pounds. Lexington Cream X X X X X Fancy Patent. This flour is made of first quality hard wheat. Lexington Cream. Lexington, Nebraska, Lexington Mill and Elevator Company," whereas in truth and in fact the said flour was not made of finest quality of hard wheat, but was milled, in whole or in part, from a grade or grades of soft wheat, and that the flour thus labeled as aforesaid, "This Flour is made of first quality hard wheat" was sold under the distinctive name of another article than itself; that it purported to be made from the first quality of hard wheat, where-

as in truth and in fact it was made in whole or in part of soft wheat, and, therefore, was sold under the distinctive name of another article than itself, and misbranded within the meaning and intent of the Act of Congress.

Wherefore, it is prayed that process issue and that the United States Marshal of this district be commanded by order of this court to seize the packages and sacks of flour aforesaid for confiscation, destruction or sale, and the same hold to be dealt with as this Honorable Court may order and determine.

A. S. VAN VALKENBURGH,
United States Attorney.

* * * * *
24 On the said 31st day of May, 1910, the Answer of The Lexington Mill & Elevator Company to the Amended Libel, is filed and is in words and figures as follows, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America, Libellant,

vs.

625 Sacks of Flour.

Answer of The Lexington Mill & Elevator Company to the Amended Libel.

To the Honorable, the Judge of the District Court of the United States for the Western Division of the Western District of Missouri:

Comes now the Lexington Mill & Elevator Company, a corporation organized under the laws of the State of Nebraska, and a citizen and resident of the State of Nebraska, and shows to the Court:

1. That it is interested in the property seized under the writ issued in this cause, to-wit, six hundred and twenty-five sacks of flour, more or less, which interest is more fully set forth hereafter, and it prays that it may be made a defendant in this cause and permitted to defend against the seizure, forfeiture and condemnation of said merchandise.

2. This claimant shows to the court that it manufactured said flour at its mill in the City of Lexington, State of Nebraska, and sold the same to B. O. Terry of Castle, in the State of Missouri, and caused said flour to be shipped from the City of Lexington, in the State of Nebraska to the said B. O. Terry at Castle in the State of Missouri; that said flour was sold by said Lexington Mill & Elevator Company under a guar-

antee that the same was not adulterated within the meaning of the Act of Congress known as the Food and Drug Act of June 30, 1906; that this defendant did not receive pay for said flour, and after the seizure of said flour by the process
25 issued in this cause this defendant was required to and did furnish to the said B. O. Terry other flour in lieu of that seized in this cause, by reason whereof the flour seized in this cause has become and is the flour of this answering defendant; and if said flour is by the order and judgment of this court seized, forfeited and condemned this answering defendant will suffer loss to the extent of the price and value of said flour, to-wit, the sum of Seven Hundred and Fifty Dollars.

3. This answering defendant admits that said flour was manufactured and shipped from the State of Nebraska into the State of Missouri by the lines of railroad set forth and described in the amended libel herein.

4. This answering defendant admits that said sacks and each of them were branded and labeled as described in the amended libel, except that instead of being branded "This flour is made of finest quality hard wheat," the said sacks were branded, "This flour is made from first quality hard wheat."

5. This answering defendant admits that the flour so contained in said packages and sacks were treated by a process known as the Alsop Process, but this defendant denies that said sacks or the contents thereof, or any portion thereof, has been caused to be adulterated within the meaning of the act of Congress as alleged in said amended libel. This defendant denies that a substance known as nitrites or nitrite reacting material has been mixed or packed with said flour, or any part thereof, so as to reduce or lower or injuriously affect its quality or strength in any respect whatsoever. This defendant denies that by said treatment said flour has been mixed, colored or stained in any manner whereby damage or inferiority is concealed in any respect whatsoever. It denies that said flour, or any part thereof, has been so treated, or has been treated in any manner whereby the grade or quality of said flour, or any part thereof, has been concealed, and denies that by such treatment the said flour, or any part thereof, has been given an appearance of a better grade of
26 flour than it really is.

6. This defendant denies that the said flour, or any part thereof, is inferior to a patent flour, and denies that the same, or any part thereof, was when milled, or now is, of a grade of flour inferior to a grade of flour known as the finest quality

of hard wheat, and denies that the quality of said flour, or of the wheat from which it was made has been in any manner concealed. This defendant denies that by the treatment of said flour, the same, or any portion thereof, has been caused to contain any added poisonous or other deleterious ingredients, which may render said flour injurious to health.

7. This defendant admits that said sacks containing said flour were labeled as alleged in said libel, except that the same was labeled as being made from first quality hard wheat instead of being labeled made of the finest quality of hard wheat. This defendant denies that the so-called patent flour is known or recognized to be a grade of flour consisting only of that portion of the content of the wheat known as middlings, and says it is not true that the flour contained in said sacks is not a patent flour, or that it is of a grade or quality inferior to a patent flour, or that it is a mixture of middlings together with a commercially inferior grade of flour, or of a flour which was at any time of a color darker than a patent flour or inferior in grade, or quality or strength to a patent flour, and this defendant denies that the same has been mixed and shipped into the State of Missouri and sold under a distinctive name of another article than it is, or that the same was labeled in any manner so as to deceive or mislead the purchaser, or that it did deceive or mislead the purchaser in any respect whatsoever.

8. This defendant admits that said sacks were labeled showing that the said flour was made of the first quality of hard wheat, and this defendant alleges that the same was made from the first quality of hard wheat, and denies that the same was made in whole or in part from a grade or grades of soft wheat, and that it was sold under a name of any article different from what it really was, or that the same was in any respect misbranded.

10. Further answering said amended libel this defendant admits that said flour has been treated by the Alsop process, and in this connection alleges that the process by which it has thus been treated consists of generating in rapid succession a flaming electric discharge in a current of air in proximity to such electric discharge, and in conducting the air as modified by such discharge into the presence of the flour as it is being continuously passed through a revolving reel or agitator, but this defendant denies that the flour thus treated is in any way adulterated or that by said process any poisonous or other deleterious ingredient is in any manner added thereto, or imparted thereto, or that the flour thus treated is in any way

injurious to health or contains any added deleterious ingredient or that the same is in any manner adulterated or that by such process any damage or inferiority in said flour is in any manner concealed or that the quality or strength of said flour is in any manner affected, reduced or lowered.

11. Further answering said complaint and libel this defendant and claimant states that it is informed and believes, and therefore avers, that this court is without right or authority of law and the officers of this court are without right or authority of law to seize the flour so manufactured and shipped into interstate commerce by this claimant, for the reason that the Food and Drug Act of June 30th, 1906, under which pretended authority is exercised and under which the seizure of the flour in controversy herein was made, is wholly invalid, unconstitutional and void, in that it deprives this answering claimant of its property without due process of law, and is in violation of Article 1, Section 8, Paragraph 3 of the Constitution of the United States giving to Congress the right to regulate commerce among the several states, and is in violation of Article 10 of the Amendments to the Constitution of the United States which provides that—

28 "Powers not delegated to the United States by the Constitution nor prohibited by it to the states, are reserved to the state, respectively, or to the people."

And this answering claimant further shows to the Court that it is informed and believes, and therefore so avers, that the said Act known as the Food and Drug Act of June 30th, 1906, is wholly illegal and void, for the reason that said Act is uncertain and indefinite, particularly in this, that said law does not define any standard of grade, quality or purity, and in this regard delegates legislative functions to the courts clothed with jurisdiction of cases of a civil or criminal nature brought under said law in violation of Article 1 of the Constitution of the United States providing that—

"All legislative powers herein granted shall be vested in a congress of the United States, which shall consist of a senate and house of representatives."

Wherefore, having fully answered, this claimant asks that said complaint and libel be dismissed, that said flour seized under the writ issued by this court be released and restored,

and for such further and different relief as may be just in the premises, and that this defendant and claimant may recover its costs herein expended.

LEXINGTON MILL & ELEVATOR COMPANY,
By E. L. Scarritt,
BRUCE S. ELLIOTT,
ED. P. SMITH,
Its Attorneys.

State of Missouri,
County of Jackson—ss.

E. M. F. Leflang, being first duly sworn, deposes and says that he is the president of the Lexington Mill & Elevator Company, a corporation; that he has heard read the foregoing answer and the statements therein contained are true as he verily believes.

E. M. F. LEFLANG.

Subscribed in my presence and sworn to before me this 31st day of May, 1910.

HOWARD N. MCCREARY,
U. S. District Clerk.

29 On the 1st day of June, 1910, the Reply of the United States to the Answer of Claimant to the Amended Libel was filed and is in words and figures as follows, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,
No. 285. vs.
Six Hundred and Twenty-five (625) Sacks of Flour.

Reply.

Now on this 1st day of June, 1910, comes Pierce Butler, Esq., Special Assistant Attorney General, and A. S. Van Valkenburgh, United States Attorney for the Western District of Missouri, on behalf of the United States of America, and for their reply to answer filed by the Lexington Mill and Elevator Company, claimant in the above entitled cause, state that they deny each and every allegation of new matter contained in said answer.

PIERCE BUTLER,
Special Assistant Attorney General.
A. S. VAN VALKENBURGH,
United States Attorney.

30 On the 1st day of June, 1910, the following entry appears of record, to-wit:

United States

No. 285. vs.

Six Hundred and Twenty-five Sacks of Flour.

This day comes A. S. Van Valkenburgh, United States District Attorney and Pierce Butler on behalf of the United States, also comes the claimant the Lexington Mill and Elevator Company by its counsel E. P. Smith, Bruce Elliott, A. E. Helm and E. L. Scarritt, and this case coming on for trial it is ordered that a jury come, to-wit: W. F. Tuttle, John M. Ellis, Fielding Hudson, Henry C. Crow, John W. Thomason, Wm. R. Smith, Geo. W. Ragan, J. C. Graves, M. G. Harman, R. R. Jenkins, Thos. T. Arnett and H. C. Kellerman, twelve good and lawful men who are duly empaneled and sworn to well and truly try the issues joined, statements are made by counsel, and the hour of adjournment having arrived further proceedings are postponed until tomorrow morning.

* * * * *

- 57 On the 2nd day of July, 1910, the following entry appears of record, to-wit:

United States

No. 285. vs.

Six Hundred and Twenty-five Sacks of Flour.

This day again come the parties to this cause, Leslie J. Lyons, United States District Attorney, and Pierce Butler, on behalf of the United States, also comes the Lexington Mill and Elevator Company, claimant herein, by its counsel Bruce Elliott, A. E. Helm and E. L. Scarritt, thereupon the matters pertaining to the courts charge and the law governing the issues in this case were argued and submitted to the court, and by the court taken under advisement.

- 58 On the 5th day of July, 1910, the following entry appears of record, to-wit:

United States

No. 285. vs.

Six Hundred and Twenty-five Sacks of Flour.

This day again come the parties to this cause, Leslie J. Lyons, United States District Attorney, and Pierce Butler on behalf of the United States, also comes the Lexington Mill and Elevator Company, claimant herein, by its counsel Bruce Elliott, A. E. Helm, and E. L. Scarritt, and the jury sworn to try this case as on Friday last, arguments are made by counsel, thereupon the claimant presented in writing seventeen written requests to charge the jury, which requests were by

the court overruled, to which the claimant at the time in open court excepts, and after hearing the charge of the court the jury retire to consider what verdict they shall render in the premises, and not having reached a verdict at the hour of adjournment, it is ordered that the marshal furnish said jury with supper at the expense of the government, and that further consideration of this case be postponed until tomorrow morning.

59 On the 6th day of July, 1910, the following entry of the verdicts and judgment in this case appear of record, to-wit:

United States
No. 285. vs.
Six Hundred and Twenty-five Sacks of Flour.

This day again come the parties to this cause, Leslie J. Lyons, United States Attorney, and Pierce Butler, Esq., Special Assistant Attorney General, on behalf of the United States, also comes the Lexington Mill and Elevator Company, claimant herein by its counsel, Bruce S. Elliott, Judge A. E. Helm, and Judge E. L. Scarritt, and the jury sworn to try this case as on yesterday, and thereupon the jury came into court under the charge of the sworn bailiff and returned two verdicts signed by their foreman, which said verdicts are in words and figures following, to-wit:

"In the District Court of the United States, Western District of Missouri, Western Division.

United States of America
No. 285. vs.
Six Hundred Twenty-five (625) Sacks of Flour, Lexington
Mill and Elevator Company, Claimant.

Verdict.

We, the jury, find that the flour seized in this case is adulterated.

July 6, 1910.

JOHN W. THOMASON,
Foreman.

60 In the District Court of the United States, Western District of Missouri, Western Division.

United States of America
No. 285. vs.
Six Hundred Twenty-five (625) Sacks of Flour, Lexington
Mill and Elevator Company, Claimant.

Verdict.

We, the jury, find that the flour seized in this case is misbranded.

July 6, 1910.

JOHN W. THOMASON,
Foreman."

and announced that the same are the verdicts of the jury.

Thereupon, the Court orders said two verdicts and each of them filed and recorded on the records of this court, which is accordingly done, to which the said claimant, the Lexington Mill and Elevator Company at the time in open court objects and excepts.

Thereupon, on motion of the United States Attorney it is ordered, considered and adjudged that the Lexington Mill and Elevator Company pay the taxable costs herein made to be taxed by the Clerk, for which a writ of execution will issue, to which ruling, order and judgment the said Claimant at the time in open court excepts.

It is further considered, ordered and adjudged that the flour seized herein and now in the possession of the United States Marshal for this District, be and the same is hereby condemned and confiscated to the United States of America, as being food adulterated and misbranded within the meaning of the Act of Congress approved June 30, 1906, and that all of the same be destroyed by the United States Marshal.

61 From the foregoing as to the confiscation and destruction is excepted the flour heretofore released by order of the court, to each, all and every of the foregoing orders, directions, judgment, and findings, the Claimant, the Lexington Mill and Elevator Company in open court excepts.

And said Claimant, the Lexington Mill and Elevator Company is given twenty (20) days from this date to file a motion for a new trial, or a motion to modify any or all of the foregoing, and a motion to vacate or set aside any or all of the foregoing, and by the word motion is meant to include any exceptions or objections to any of the foregoing, or all of the same; and also the right and privileges is hereby given to said Claimant to serve and file Bill of Exceptions or notice of appeal from any or all of said orders within the time allowed by statute and the rules of Court. No process or writ shall issue until the motion for new trial is ruled on, if filed within said 20 days.

SMITH MCPHERSON, Judge.

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121 On the 11th day of November, 1910, the following order was filed and entered of record, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America

vs.

625 Sacks of Flour. Lexington Mill & Elevator Company,
Claimant.

Order.

On this 11th day of November, 1910, in open court, come the parties in the above entitled cause, by their respective attorneys, and the motion for a new trial herein heretofore filed by claimant, Lexington Mill & Elevator Company, is presented to the Court.

Thereupon the libellant, in writing filed herein, which writing is made a part of the bill of exceptions and records in this case, consented and prayed the Court that the judgment heretofore entered herein be modified as in said writing stated; that the claimant objected to libellant filing its said writing, or any writing, and objected to any modification of the judgment whatsoever, either as prayed by the libellant or otherwise; and the Court, in view of such objection on the part of the claimant, declines to modify the same as prayed by the libellant; and by said writing the libellant objected to the receiving in evidence the affidavits filed herein, namely, that certain affidavit of Bruce S. Elliott, A. E. Helm and E. L. Scarritt, that certain affidavit of juror Henry C. Crow, that certain affidavit of juror R. R. Jenkins, that certain affidavit of juror J. C. Graves, that certain affidavit of juror James T. Arnett, all bearing date of July 22, 1910, and filed herein, upon the ground

122 that the said affidavits are and each of them is incompetent, irrelevant and immaterial, and inadmissible to impeach, modify, explain or define the verdicts and findings of the jury herein, and upon the ground and for the reason that the charge of the Court to the jury, herein, was wholly in writing, and was read in its entirety by the Court to the jury in open court and in the presence of counsel, after the Court had handed to counsels of the parties respectively, a complete copy of such charge, and for the reason that said written charge was immediately upon the completion of the reading thereof by the Court to the jury handed to the jury by the Court or under its direction, in open court, openly and in the presence of counsel for the parties, respectively; and for the reason that no objection thereto was made by counsel on either side, or by any other person; and libellant moved to strike all of the

said affidavits from the files; and the Court, having considered the same, sustained the objections of said libellant, to each of the said affidavits, and ordered that the same be stricken from the files herein; to which action of the Court in striking said affidavits from the files the claimant objected and excepted at the time, and still excepts, which exceptions are allowed.

And the Court having considered the claimant's motion for a new trial, and being duly advised thereon, doth overrule and deny said motion; to which action and ruling of the Court in overruling and denying said motion for a new trial, the claimant, at the time, duly excepted and still excepts, which exceptions are allowed.

Thereupon the motion in arrest of judgment heretofore filed herein by said claimant, being submitted to the Court, the Court having considered the same, and being duly advised thereon, doth overrule and deny said motion; to which action and ruling of the court in overruling and denying said motion in arrest of judgment the claimant duly excepted at the time
123 and still excepts, which exceptions are allowed.

Thereupon said claimant presents to the Court its bill of exceptions herein, preserving its exceptions to all actions, rulings, decisions, judgments and decrees of the Court had at and during the trial and progress of this cause.

Thereupon the libellant, in writing, presented to the Court certain objections, amendments and modifications to the bill of exceptions proposed by the claimant, which writing was on this day filed in court. The libellant withdrew the objections stated in the paragraph numbered (1) of said writing, which writing is included in the bill of exceptions herein. After due consideration, and the Court being fully advised thereon, the Court doth approve, sign, seal and allow the Bill of Exceptions, and hereby orders that the same be and is duly filed herein as a part of the record in this cause.

Thereupon the claimant herein files and presents to the Court its application for a writ of error herein to the United States Circuit Court of Appeals for the Eighth Judicial Circuit, and there is filed with said application for writ of error an assignment of errors, and also a bond in the sum of \$2,500.00, signed by claimant, Lexington Mill & Elevator Company, as principal, and the Bankers Surety Company of Cleveland, Ohio, a corporation, as surety. Therefore, it is ordered that said assignment of errors be and the same is hereby ordered filed as a part of the record herein, and that a writ of error is allowed in the above entitled cause to the United States Circuit Court of Appeals for the Eighth Judicial Circuit as prayed for in the

said application and that the bond presented herewith in the sum of \$2,500.00, signed by the claimant, Lexington Mill & Elevator Company, as principal, and the Bankers Surety Company, as surety, is approved and ordered to be filed and made a part of the record in this cause; and it is further ordered that the said bond shall operate and be a supersedeas bond and shall stay all further proceedings with reference to the judgment and decree in this cause during the pendency of this writ of error in the United States Circuit Court of Appeals for the Eighth Judicial Circuit, and that a writ of citation issue in accordance with the allowance of this writ of error, which said citation is now and here issued.

Thereupon the said claimant files and duly serves in open court the libellant and its attorneys with a citation herein allowed and ordered, which citation is duly accepted by said libellant and its attorneys.

SMITH McPHERSON, Judge.

125 The Bill of Exceptions, filed November 11, 1910, is in words and figures as follows, to-wit:

Volume 1.

In the United States District Court for the Western Division of the Western District of Missouri.

United States of America,

No. 285. vs.

Six Hundred and Twenty-five (625) sacks of Flour. Lexington Mill and Elevator Company, Claimant.

Bill of Exceptions.

The above entitled cause on to be heard before Hon. Smith McPherson and a jury at Kansas City, Missouri, on Tuesday, May 31, 1910, at ten o'clock A. M. Mr. Pierce Butler, Special Counsel, and Mr. Leslie J. Lyons, Assistant District Attorney, appeared on behalf of the United States of America; and Messrs. Ed. P. Smith, Bruce S. Elliott, A. E. Helm and E. L. Scarritt appeared on behalf of the claimant and defendant, and the property seized.

Whereupon on said day the jury was impanelled and on the following day the opening statements of the respective counsel were heard, and thereafter, on Thursday, June 2, 1910, at ten o'clock A. M. of said day, the taking of testimony in the said cause was begun, and the following proceedings were had.

126 Thursday June 2nd, 1910.

At ten o'clock A. M. of the above day and date, Court met, pursuant to adjournment as hereinbefore set out.

The Court: Now, gentlemen, we have impaneled the jury, and we have heard the opening statements of what each side contends, and we are ready to put in this evidence. I do not desire to hurry either side, but I feel, now, we ought to get along. I am inclined to think that, after a day or two, when you gentlemen have had your consultations and little conferences with your witnesses that we ought to have somewhat longer court hours. I will not do that for a day or two until you have had the requisite conferences with your witnesses, especially your experts, but, after a day or two, I think we will have to have longer Court hours.

Counsel for the Government may proceed.

Mr. Lyons, you furnished me a few days ago a copy of this statute of June 30th, 1906, but it has been mislaid, or something and if you have an extra copy I will be glad to have it before me.

Mr. Butler: I think we have one.

(Document referred to produced, and handed to the Court)

The Court: You rely on paragraphs one, four and five of what sections?

Mr. Butler: Seven.

The Court: All right.

Mr. Butler: Government Exhibit "A" being a certified copy of letters patent to James N. Alsop, No. 759651 granted May 10th, 1904, for an improvement on process of bleaching flour, is offered in evidence.

Mr. Scarritt: How do you designate that Mr. Butler?

Mr. Butler: Government Exhibit A, Judge Scarritt.

127 The Court: I would suggest—I have found it most convenient, where there is likely to be a good many exhibits, to have the exhibits of the plaintiff numbered commencing with No. 1 and the defendant's exhibits commencing with No. 101, or 201, and then you will always know by the mere mentioning of an exhibit whose exhibit it is. I have found that in my practice. We will call this Exhibit 1 Mr. Reporter, and when we commence with the defendant we will say 201. Then we always know, immediately whose exhibit it is. When the defendant offers the first one that will be 201, and on up, and the government commencing with 1 on up.

Mr. Smith: The defendant objects to Exhibit 1 as incompetent, irrelevant, immaterial, and in no way tending to prove any of the issues in this case, and the defendant separately and specially objects to that part of said Exhibit No. 1 being the printed part, commencing with the words, "United States Patent Office. J. N. Alsop of Owensboro, Kentucky", and down to and including the remainder of the printed portion, as being incompetent, irrelevant and immaterial, and being statements made by a person not a party to the case, not made in the presence of this defendant, and is, in no wise, binding on this defendant.

The Court: Now, what is that printed matter, Mr. Smith?

Mr. Smith: Well, it is his description and his claim.

The Court: Well, the claims on which the patent was issued?

Mr. Smith: I don't know.

The Court: I assume so.

Mr. Smith: I assume so. I don't know it, but I assume so, and I further specifically object to that part of the printed portion, commencing on what is marked page 4, commencing with the words, "Having thus fully described my invention what I claim as new is," and from this down to and including the words, "J. N. Alsop," for the reason that it is in-
128 competent, irrelevant and immaterial being declarations made by a party not a party to this suit, not being made in the presence of the defendant, The Lexington Mill and Elevator Company, and in no wise binding upon it.

The Court: The objection is overruled.

Claimant excepts.

The Court: Now, just a moment. I am not familiar with these terms. Let's see. You are a proctor,—not a lawyer, I believe?

Mr. Smith: Well, I should hate to have it told in Court I am not a lawyer. Maybe I am not. I hate to have you make it public.

The Court: Well, I mean all of you. I don't mean you individually. I mean Mr. Butler likewise.

Mr. Smith: Yes, I know what your Honor means.

The Court: Now, what is this party called,—the claimant?

Mr. Smith: Yes, the claimant.

Mr. Lyons: In the answer he asks to be made a defendant.

The Court: Well, "Claimant" I suppose is all right, and "Claimant excepts."

Mr. Smith: Yes.

The Court: I never tried an Admiralty case in my life.

Mr. Butler: Neither did I.

The Court: I see that.

Mr. Butler: Government's Exhibit 2 is offered in evidence. It is a certified copy of letters patent of James N. Alsop, numbered 758883, granted May 3rd 1904, for improvements in methods of generating gaseous medium from air.

Mr. Smith: The whole Exhibit is objected to as incompetent, irrelevant and immaterial, and in no wise binding upon the defendants in this case, nor tending to prove any of the issues in this case, and especially we object to that part of it commencing with the words, "United States Patent Office," thence down to and including the words "J. N. Alsop",
129 for the reason it is incompetent, irrelevant and immaterial, not tending to prove any issue in this case, and being statements made by a party not a party to the record, not being made in the presence of the claimant, and in no wise binding upon it; and we specifically object to that part of it commencing on page 4 of the printed portion with the words, "Having thus fully described my invention, what I claim as new, and desire to secure by letters patent of the United States is," and from thence down to and including the words, "J. N. Alsop," as being incompetent, irrelevant and immaterial, statements made by one not a party to the record, and not made in the presence of the defendant, and in no wise binding upon it.

The Court: The objection overruled, and the claimants except.

Mr. Butler: Government's Exhibit 3 being a certified copy of Letters Patent to James N. Alsop, No. 758854, granted May 3rd, 1904, for improvements in apparatus for generating gaseous medium from air, is offered in evidence.

Mr. Smith: The whole exhibit is objected to as incompetent, irrelevant and immaterial, not tending to prove any issue in this cause, and specifically object to that portion of it commencing with the words "United States Patent Office", being the printed portion down to and including the words, "J. N. Alsop," for the reason that that portion is incompetent, irrelevant and immaterial, not tending to prove any issue in

this cause, and we specifically object to that part commencing with the word, on page 3 of the printed part, "Having thus fully described my invention, what I claim as new, and desire to secure by letters patent of the United States is," and from thence down to and including the signature, "James N. Alsop," as incompetent, irrelevant and immaterial, being statements made by persons not a party to the record, not being made in the presence of this claimant, and in no wise binding on it.

130 The Court: Objection overruled, and claimant excepts.

Mr. Butler: Mr. John Mitchell will be sworn.

John E. Mitchell, called as a witness on behalf of the government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Mitchell, what is your business?

A. Manufacturing business.

Q. What line?

A. Manufacture electrical and milling machinery especially,—

Q. —Are you alone in the business, or are you connected with a company?

A. I am associated with two companies.

Q. What two companies?

A. The Mitchell-Parks Manufacturing Co. and the Alsop Process Company.

Q. The Alsop Process Company? A. Yes, sir.

Q. Are you an officer of that company?

A. I am general manager of that company; yes, sir.

Q. Are you an officer of the company,—president or secretary? A. No, I am not.

Q. You are in charge of its affairs? A. I am, yes, sir.

Q. And its principal managing officer or agent?

A. I am the manager; yes, sir.

Q. That company is associated in the defense of this suit, and employing counsel herein, is it?

Mr. Smith: I object to that as immaterial. Pardon me. I don't know what the rules of this court require; whether it requires counsel to stand when they examine witnesses and rise when they make objections?

The Court: I think so.

Mr. Smith: I will conform to that rule.

131 Mr. Butler: I am not in your way, am I?

Mr. Smith: Oh, no.

Mr. Butler: This is a very convenient place.

Mr. Smith: Yes, sir, that is all right.

The Court: He may answer.

A. We have an attorney here, yes, sir. Mr. Elliott represents us.

By Mr. Butler:

Q. Mr. Bruce S. Elliott, who is one of the attorneys of record is employed by your company to defend this case?

A. Not altogether.

Q. Associated with the other gentlemen here?

A. We pay half of his—

Q. I don't care for that.

A. —the millers pay the other half.

Q. I hope that he is paid enough, but I merely wanted to show your connection,—the Alsop Process Company's connection with the case. Does the Alsop Process Company own the bleacher that bleached the flour that was seized?

A. Yes, sir, it does.

Q. That, I believe is located in the mill of the Wellington—is it?

Mr. Lyons: Lexington.

Mr. Butler (Continuing): Lexington Mill and Elevator Company at Lexington, Nebraska.

A. I should say that the Alsop Process owns the patents covering that. Of course, they bought the rights, and it now belongs to them.

Q. How many bleachers does your company own at that mill? A. We don't own any at that mill.

Q. I misunderstood you.

A. Well, I explained, Mr. Butler, that we owned the rights under the patent, and we sold those rights to this mill that you refer to; and the machinery and the rights, so far as that particular mill was concerned, of course, now belongs to them.

Q. Does the Alsop Process Company receive a royalty upon flour bleached in that mill. A. It does not.

132 Q. By those machines? A. It does not.

Mr. Butler: That is all.

The Court: Any cross-examination?

Mr. Smith: I think not.

Mr. Elliott: I want to ask Mr. Mitchell one question. Does the Alsop Company receive a royalty from the use of any of the machines from any mill?

Mr. Butler: Objected to as irrelevant and immaterial, and not cross-examination.

The Court: He may answer.

A. It does not.

Mr. Butler: Did it ever?

A. Yes, soon after—

Q. (Interrupting) Well, I will just ask you another question? When did it cease to collect royalties?

A. I couldn't state exactly.

Q. About when?

A. It has been perhaps three years ago, and there were only three or four mills that did that, and that was done at their request, but that was discontinued when they purchased the rights the same as the other mills.

Q. What do you mean by "purchased the rights"? Do you mean to distinguish between the ordinary sale of an article that is protected by patent, as, for instance, the plows in farm machinery are, or used to be patented, and they were sold to the farmers, and became the property of the farmers to use. Now, do—what do you mean by selling the rights?

A. Well, I mean this: That we had patents on a process for treating flour with electricity, and we sold rights under that process, to use it in the various mills, and the company originally sold those rights before it was in the business of manufacturing the machinery.

Q. The machinery would be manufactured by somebody else? A. In the beginning.

Q. So that, with respect to this particular—how many bleachers are in the mill, of the Alsop Process type.

A. How many bleachers?

133 Q. Yes.

A. You mean how many machines do they have for practicing the process?

Q. Yes. Do you know?

A. I don't know. I know they must have one, and they may have two. Most mills have an extra machine—an emergency machine.

Q. I am not talking about any other mill.

A. I am speaking about that one.

Q. They have one, and maybe two.

A. Yes, a good many do.

Q. The rate of pay, the compensation, or money received by the Alsop Company from this particular claimant,—is that measured in any way by the extent of use of the process?

A. Absolutely not, now. The price in the beginning was based on their output, of course.

Q. That is, the price of the machine is based upon their daily capacity.

A. The price of the rights to use the process is based upon their daily capacity.

Q. Yes, and their daily capacity in this particular case is how much?

A. Well, I don't remember, Mr. Butler.

Q. Well, about how much, Mr. Mitchell.

A. I don't know, I do not know.

Q. Yes, you don't hold that in mind particularly?

A. I can't remember no. I can't remember, no,—there are so many.

Q. But, for example, the price of such a bleacher to a miller we will say of one hundred barrels a day output, would be less than if in a case of a mill of five hundred?

A. It would.

Q. Yes? And so on up. A. Yes, sir.

Q. So the price of the right to use the process depends upon the capacity or output of a mill? A. That's right.

Q. Now, upon which? The capacity or the output.

A. The capacity of the mill for 24 hours.

Q. Yes?

A. —is the basis on which the right to use the process is sold.

Q. Yes? And even though the mill wasn't running to full capacity, the price would be the same as if it was.

A. Exactly.

134 Q. Yes.

Mr. Butler: That is all.

(Witness excused)

Mr. Butler: Mr. B. O. Terry.

B. O. Terry, a witness of lawful age, being produced, sworn and examined on behalf of the government, testified as follows.

Direct Examination.

By Mr. Butler:

Q. Where do you live, Mr. Terry?

A. I live at Greencastle, Missouri.

Q. What is your business?

A. I am in the general merchandise business now.

Q. That is a general store at Greencastle. A. Yes, sir.

The Court: Greencastle, Missouri?

A. Yes, sir.

Q. Are you the same B. O. Terry who is named in the papers in this suit?

- A. I suppose so. I am the only B. O. Terry there.
- Q. How long have you been a storekeeper at Greencastle?
- A. Just went into business there a year ago last March.
- Q. Do you deal in flour. A. Yes, sir.
- Q. Sell flour at retail? A. Yes, sir.
- Q. Prior to your going into this business had you ever dealt in flour? A. No, sir.
- Q. Can you give us about the volume of your business in flour—about how much flour you have sold since you have been in business there, bought and sold?
- A. Well, I think about three carloads a year.
- Q. At the rate of about three carloads a year, and you have been about fifteen or sixteen months in the business?
- A. 15 months.
- Q. So, altogether, about four carloads?
- A. Yes, sir.
- Q. What was your occupation before you were storekeeper?
- A. I was a farmer.
- Q. In that vicinity? A. Yes, sir.
- 135 Q. Prior to the receipt of the flour which was seized in this case had you ever procured any flour from the claimant, the Lexington Mill and Elevator Company of Lexington, Nebraska? A. No, sir.
- Q. How was the order for this flour given,—to a salesman, or otherwise. A. To a salesman.

The Court: What we call a commercial traveler called on you?

The Witness: Yes, sir.

Q. And was the order given in writing? Was there a written order? A. Well, yes. He gave me a duplicate.

Q. Yes. He wrote out an order and gave you a duplicate of it? A. Yes, sir.

Q. Have you that writing with you? A. Yes, sir.

Q. Will you produce it please, and all the writings that this company gave you with respect to this particular transaction? A. (Producing paper) Here is the order itself.

Q. Yes. Was there any other writing?

A. Here is the guarantee, I believe. This is the guarantee. They gave me that.

(Documents referred to marked respectively 4 and 5)

Mr. Butler: (To the clerk) Have you a pin, please? Have you a pin please to fasten Exhibits 4 and 5 together?

Mr. Scarritt: Here is one.

Mr. Butler: Thank you very much. Government Exhibits 4 and 5 are offered in evidence.

Mr. Smith: No objection.

Q. How many sacks of flour did you receive from this company? A. 625.

Q. What size sacks? A. 48 pound sacks.

The Court: Sir?

A. 48 pounds sacks.

The Court: Forty eight.

Q. When did you receive them.

136 A. It arrived the 7th day of April?

The Court: Of—

Mr. Butler: April last?

The Witness: 1910.

Q. How many sacks were seized by the marshal in this case?

A. Well, he took just what I had, the morning of the 11th. He came in, we had sold a few out, the Friday and Saturday before, I think—

Q. (Interrupting) About how many in all.

A. I think he counted them 597.

Q. Yes? So it was about that. A. Yes, sir, about that.

The Court: You had sold twenty or thirty?

A. Yes, sir,—

The Court: Something like that?

A. Yes.

Mr. Scarritt: Twenty-eight?

Q. Was the flour seized by the marshal in the same sacks that it was shipped to you in? A. Yes, sir.

Q. Had the sacks been opened or broken at all?

A. No, sir.

Q. Did you know prior to the seizure in the case that this flour had been bleached by the Alsop Process?

A. No, sir, I knew nothing about it.

Q. What was the price paid for this flour?

A. Five dollars a barrel.

Q. That was the price agreed to be paid? A. Yes, sir.

The Court: Counting four sacks to the barrel?

A. Yes, sir.

Q. It is stated in the answer in this case, that it was not in fact paid for, but that they have since furnished you other

flour in place of this. What was the price of patent flour, by car loads, at Greencastle at the time you gave this order?

Mr. Smith: That is objected to as incompetent, irrelevant and immaterial.

The Court: He may answer it.

A. Will you please state the question again.

The Court: The gentleman will read it.

137 (Last question read)

A. To the best of my recollection other mills that I was figuring with asked me \$5.30, \$5.25,—and five dollars and thirty-five cents maybe, along there.

The Court: What was the price of this that was seized?

The Witness: Five Dollars.

The Court: Delivered?

The Witness: Yes, sir.

The Court: Free on Board at your station?

The Witness: Yes, sir.

Q. With respect to the flour which they allege in their answer they furnished you in place of this flour that was seized, what was the name or label upon that flour?

Mr. Smith: I object to that as not the best evidence, and incompetent.

The Court: My mind was on another matter. Will you please read this to me.

(Last question read)

Mr. Smith: I object to that as not the best evidence, and immaterial.

The Court: Sustained.

Q. Was that flour bleached or not?

Mr. Smith: I object to that.

Q. Or, did the elevator company make any representations to you upon that subject?

Mr. Smith: I object to that as immaterial, incompetent and irrelevant.

The Court: He may answer.

A. This second car that I bought was specified to be unbleached.

Q. Was it the same or different; was it labeled the same or differently from the other?

Mr. Smith: I object to that as not the best evidence, incompetent, irrelevant and immaterial.

138 Mr. Butler: What is the point? That we must go and get the bags?

The Court: That ought to be [any] plain to any "proctor".

Mr. Butler: Maybe it is, to a proctor. I am just a lawyer.

Mr. Smith: The Court said we were not.

Mr. Butler: He took it back about me.

Mr. Smith: Well, that is all right. Possibly the government is the only one that has got lawyers.

Mr. Butler: I guess so.

Cross-Examination

By Mr. Smith:

Q. Mr. Terry, you say in the original shipment there were 625 sacks? A. Yes, sir.

Q. They were counted as they were unloaded, were they?

A. Yes, sir, they were checked up.

Q. And prior to the time that the marshal seized them, a certain number had been sold? A. Yes, sir.

Q. And, when the marshal seized them, were they counted?

A. Well, he counted them.

Q. In your presence? A. Yes, sir.

Q. And your recollection is there were 597?

A. Yes sir.

Q. Now, had any of those which had gone out been returned by the customer who bought it? A. No, sir.

Q. Were any of them ever returned by the customers who bought them? A. No, sir.

Q. Calling your attention to this written guarantee, government Exhibit 5, I notice it says: "We, the undersigned, do hereby guarantee cream 5-x and 4-x patent flour sold and made by us to give the purchaser, B. O. Terry, entire satisfaction as to quality, and to be within the meaning of the state and national pure food laws. We, the undersigned, do further agree if cream 5-x and 4-x patent flour do not give
139 satisfaction to customers of B. O. Terry, refund to purchaser the purchase price of flour, if paid for, and if unpaid for remove flour from his possession at our expense." You may state whether any of the parties to whom the flour was sold by you returned it, and made complaint of the flour, and asked reclamation. A. They did not.

Mr. Butler: I think I will object to that, if it please the Court as immaterial and irrelevant.

The Court: Objection sustained.

By Mr. Smith:

Q. You may state whether or not, Mr. Terry, so far as you know, and so far as any of your customers know, to whom the flour was sold, whether it conformed to this guarantee as to giving satisfaction?

Mr. Butler: The same objection.

The Court: Objection sustained.

Q. Prior to the purchase of this flour did you have any conversation with the representative of the mills who sold it, as to whether or not it was or was not bleached?

A. I had no conversation about that. I didn't think anything about that.

Q. As a matter of fact you bought the flour on the strength of this guarantee that they gave you?

A. Yes, sir.

Q. And you sold it the same way?

Mr. Butler: Objected to as immaterial.

The Court: Oh, I think so.

Mr. Smith: Sir?

The Court: I think how he sold it is immaterial.

Mr. Butler: Is that all, gentlemen?

Mr. Smith: Yes, I guess so.

Mr. Butler: We will excuse Mr. Terry from further attendance unless you gentlemen want him. We will call him later on, but I won't ask that he remain here all this time.

Mr. Smith: You will come if requested by telegraph or otherwise, during the trial?

The Witness: From home?

Mr. Butler: Yes.

140 The Witness: Yes, I will if I have to.

The Court: They are simply allowing you to go now as an accommodation to you. How far is Greencastle from here?

The Witness: One hundred and forty-eight miles.

The Court: If Mr. Smith or any of his associates wire you you will please come. Of course, your attendance, and all that

will be arranged. Those matters can be covered by arrangement entirely satisfactory to you. If they wire you please come back, and they will make it satisfactory with you.

(Witness excused.)

James H. Shepard, called as a witness on behalf of the government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Your name is James H. Shepard? A. It is.

Q. State your age, place of residence, occupation, education, and technical or special training, if any?

A. My residence is Brookings, South Dakota.

Q. Now, this room, I find the acoustics are bad here?

The Court: Speak up please. Put a little volume in your voice.

Mr. Butler: And, if you will, speak plainly, so we all can hear.

The Court: You live somewhere in South Dakota, but I didn't catch the place.

The Witness: Brookings.

The Court: Brookings?

The Witness: Brookings, South Dakota.

The Court: Your age is what?

The Witness: My age is fifty years. I am professor of chemistry of the South Dakota State College, and the chemist of the agricultural experimet station at Brookings, S. D., and I have held these positions for the last twenty-two years.

The Court: Now, Brookings,— is that the location of your State University?

The Witness: The State Agricultural College.

141 The Court: State Agricultural College?

The Witness: Yes, sir.

The Court: The same as Columbia Missouri, and Ames Iowa, and so on?

The Witness: Yes, sir.

The Court: All right; excuse me—has that institution got a land right from the government, the same as the other institutional colleges?

The Witness: It is a land right college, and that experimental station which investigates all agricultural problems, is located there in connection with the college.

The Court: The same as Columbia, Missouri, and Ames, Iowa?

The Witness: Same thing, yes, sir.

The Court: All right.

Q. Now, what education and experience as a teacher have you had in the line of chemistry, and state whether or not you have written any books upon the subject, and what research and so forth? I want you to state just your professional qualifications.

The Court: Yes,—throw off all modesty and tell just what you have done. They want to know.

A. For nine years I have been chemist to the South Dakota Pure Food Commission. I was educated at Michigan University. I have written several text books on chemistry. I have been engaged for the last twenty-two years in original investigation along the lines of water, and all kinds of foods, plants and grains that are produced. I have been engaged for the last five years in determining the digestive co-efficient of our grains, and grasses, to see how much will digest; and I have made many researches along the line of pure food work. I have done a considerable experimenting along the lines of making digestion experiments to test out some of these new things that are prohibited by the pure food law, and of late I have—

142 well, again,—I have issued a great many bulletins of all these different subjects in addition to other things which I have published (Laughing) Isn't that enough?

By Mr. Butler:

Q. Now, have you made any special study of bleaching flour by means of a bleaching medium? A. I have.

Q. Composed of nitrogen peroxide gas mixed with atmospheric air, such as is referred to in the patents in evidence.

A. I have.

Q. Give the Court and the jury a general idea of the extent of your investigations. The time consumed, whether or not you have taken part in any public hearings, trials, in this country or abroad involving an examination of bleaching of flour with nitrogen peroxide gas, and air mixed together, as a bleaching medium?

A. About two or three years ago I commenced an investigation on nitrogen peroxide, as an antiseptic reagent. Not long after that I was called to North Dakota as a witness in the behalf of the State of North Dakota in a suit to restrain the pure food commissioner from enforcing the law forbidding the sale of bleached flour. I was also called to Washington D. C., and took part in the hearing before the Secretary of Agricul-

ture at the time the hearing was held there, when this resulted in a restraining order from shipping bleached flour in Interstate Commerce. Again I was called to London, England,—

The Court: (Interrupting) Just wait a moment. The bailiff wants to make an inquiry.

(The bailiff made the inquiry mentioned, and the witness proceeded as follows.)

(Continuing) I was called to London, England in another case involving the validity of the Andrews patent.

The Court: Now, right there. I don't want to interrupt. Now, the Andrews and Alsop is practically the same thing?

The Witness: The result of their machine is the same thing.

143 Mr. Scarritt: If your Honor please, we object to these conclusions. The question was what experience he had had to show that he could act—

The Court: (Interrupting) Oh, of course, we have all read the opinion in the 167th Federal or whatever it is, and he was talking about the Alsop, and now he is talking about the Andrews, and I supposed the jury would not know what he meant by that.

Mr. Scarritt: I am not objecting to your Honor's question. It was the—

The Court: As I understand it the Andrews and the Alsop for practical purposes are the same thing, but I am not seeking to dictate to this witness. The opinion so recited.

Mr. Scarritt: What I was objecting to was reciting his attendance on certain things which resulted in certain legal propositions.

Mr. Butler: Oh, no. He didn't mean that. The result of the treatment is the same.

Mr. Scarritt: Oh, I understand the judge. I simply objected to the witness stating the conclusion which were arrived at, by reason of these things.

The Court: Oh, of course. You need not state that, as yet, Mr. Witness.

Mr. Scarritt: He has stated twice, your Honor, what I objected to.

The Court: Perhaps it was subject to your criticism.

Mr. Scarritt: Mr. Butler didn't call for that in his question.

The Court: I knew what the witness meant, when he said Alsop, and when he said Andrews patent, but I assumed the jury didn't know; you can explain that in a general way.

The Witness: I shall explain that?

The Court: Yes,—in a very general way, what you mean by saying, sometimes, Alsop, and sometimes Andrews.

A. Andrews generates his peroxide gas by chemical means, by using peroxide gas with the metal. The Alsop people generate theirs by electrical means, by means of a strong current, but they both use the gas.

144 The Court: Now, the Frenchman, Frichot—

The Witness: (Interrupting) Frichot had a machine wherein he used electricity, but he was using a different product.

The Court: Yes.

The Witness: (Continuing) He used a very high tension current, and his points were a good ways apart, and, instead of making the flame discharge like the Andrews people it made just a gentle glow across the space, and the wheat went through there. That generated ozone. The Andrews process generates nitrogen peroxide.

The Court: And so does the Alsop, does it?

The Witness: And the Alsop process generates nitrogen peroxide.

The Court: All right.

The Witness: (Continuing) And that is what the claim was over there. They were trying to prove that the Frichot,—

Mr. Scarritt (Interrupting): Now, we object to that.

The Court: Never mind that. That isn't it.

Mr. Smith: Unless he permits us to show the results,—

Mr. Butler: No, we didn't call for that, nor your Honor didn't, and the witness is wholly excusable—

The Court: Yes, if there was any wrong done by me—I thought I would clear that up in a general way.

By Mr. Butler:

Q. You are familiar with the process for bleaching flour, referred to in the pleadings in this case as the Alsop process?

A. I am.

Q. I would like to have [—] explain to the court and jury the essential features of that process for bleaching flour. Make it as plain and distinct as possible.

A. The essential apparatus in the Alsop process is a chamber—a small chamber—with two electrodes. One is made to approach the other,—one is stationary and one is raised up and down by suitable crank motion. These electrodes
145 are charged with a heavy current of electricity. There is a considerable quantity of this current, so when these points touch the current flows just for a second, and when they are pulled apart in this way (indicating) there is a flaming discharge takes place between the two; this flaming discharge is of a very high temperature. It is of a high temperature,—so much higher than the ordinary temperature of combustion, where gold or gas or anything of that kind burns, that it causes the nitrogen that is in the air,—and you know there are two gases in the air that concern us,—one is nitrogen. About three-quarters of the air is nitrogen, and about a quarter of it is oxygen. Well, this temperature is so high that this nitrogen and oxygen combines,—they actually burn, as we might say, and the result of it is a product that you will hear a great deal about, called nitrogen peroxide. That is the name of the compound. Now, this compound is generated in this small box. As soon as the electrode has been separated, a portion of this peroxide is formed. Now, while the electrode is returning a current of air sweeps out what was made in there and draws in a fresh supply of air; so that each flash has a fresh supply of air, and the peroxide that is made is swept along. That is carried by a tube to a box that is provided with rotating apparatus, and the stream of flour,—the finished flour from the mill comes into this agitator, and it is spread all out like that (indicating) and falls down through the air, and it the air, and this nitrogen peroxide coming up through, and during this passage the bleaching is effected.

Q. I find in the specifications of the patent which is here marked Exhibit 1,—it is marked Exhibit A but I will change that to 1 under your Honor's suggestion.

The Court: Yes,—1.

Q. (Continuing) This statement: "I mean to identify accurately by chemical formula this gaseous medium. It has been determined by chemical analysis however that the air, treated in the manner hereinafter described, contains
146 nitrogen peroxide", then in parenthesis "NO₂" and "N₂O₄" a trace of ozone, and is in a state of ionization, that is to say the air is separated into atoms, or compounds of atoms—

A. (Interrupting) Once more? The air is separated into—

Q. (Continuing) "Atoms, or compounds of atoms, which are electrically charged, some negatively and some positively, and are thus in a condition to enter into new compounds." Now, first, I desire to ask you whether NO₂ and N₂O₄ are chemical formulae for nitrogen peroxide gas, referred to by you in your description of this process. A. They are.

Q. Yes? And O₃? Is that the chemical formula for ozone?

A. It is.

Q. And, that the jury may see how it is written, I have written them correctly on this paper (exhibiting paper)?

A. That is correct. The NO₂ is this nitrogen peroxide gas, at a rather high temperature, and N₂O₄, it may assume that form, at a lower temperature. The O₃ is the ozone,—that is, pure oxygen. There is a deep-seated change, some way. The air molecule of oxygen, just as it occurs here in the air, is represented by O₂—that is, 2 atoms are combined, here, together. There is one thing, with very few exceptions,—no atom can exist alone. That ozone—O₃—exists only at a low temperature, at the ordinary temperatures of the atmosphere, and about like that. Heat, or anything, breaks it all up, and it goes into common oxygen again.

Q. Now, I want you to describe the substance known as nitrogen peroxide, as to its color, weight, and characteristics.

A. This nitrogen peroxide that is formed in the Alsop Process, when we have it pure, and not mixed with air—concentrated—just the pure gas, is a dark brownish red gas, that is heavier than air. It is powerfully corrosive. It is extremely poisonous, and, being inhaled in small quantities, produces an irritation of the lining membranes of the nose and the throat, and, if it were inhaled in sufficient quantities, it would result in death. If this gas, however, be diluted with

147 air, the same time that you dilute the gas with air, you dilute the color, and it keeps growing lighter colored, and lighter colored, because you put more air with it, the air is colorless, and you can go on and dilute this peroxide to such a point that you may not be able to recognize it, really; but you can't dilute it very well beyond the point where the odor—the odor remains. The odor is there. You can detect it in the atmosphere, in very minute quantities, by the odor, on account of its great pungency.

By the Court:

Q. What do you mean by "corrosiveness"?

A. I mean that it eats—bites in.

By the Court:

Q. Iron—metals?

A. Oh, it will eat metals. Yes, it will. It will eat up most of the ordinary metals, especially in the presence of water. Gold and platinum would not be attacked.

By the Court:

Q. Would not? A. Would not be attacked.

By the Court:

Q. Gold and platinum?

A. No, they would not. But, all the common metals, such as iron, and zinc,—

By the Court:

Q. (Interrupting) Tin?

A. Well, tin more slowly. Tin isn't attacked by nitric acid very well, because it doesn't make a soluble salt. It makes an insoluble compound, tin oxide. It makes a tin oxide. It coats it over.

Q. Now, further, as respects nitrogen peroxide gas, without dilution, did I understand you to say that it was a heavy gas? A. I did that.

Q. Yes? Now, with respect to the weight of air—heavier or lighter than air?

A. Oh, it is heavier. It is considerably heavier. It is
148 so heavy that one could take a cup of it, like this, and turn it into another cup—decant it, or turn it up, just as you would a liquid, that is, using the same motion—the same principles. It is heavier than air.

Q. Have you, yourself, visited mills and observed therein the use of the Alsop process for bleaching flour?

A. I have.

Q. Many, or few?

A. Well, quite a good many.

Q. Quite a good many? And have you yourself, observed the nitrogen peroxide gas, after dilution by the atmosphere, into the condition that it was used for bleaching by the Alsop process? A. I have.

Q. With what respect to that, I would like to have your description?

A. It appears—if the generating box has glass sides, which it sometimes does, sometimes one can readily detect by the eye a slight color in there, and sometimes it is almost impossible to see the peroxide as it is formed. But there is always a little leakage around the agitator, and the odor is quite marked.

Q. The odor of it is observable?

A. Is observable, yes, sir.

Q. Now, it is not the same, then, as pure air, as was described by Mr. Smith in his opening, yesterday?

Mr. Smith: I object to this as leading and suggestive.

By Mr. Butler:

Q. Well, is it the same as the pure air described by Mr. Smith in his opening, yesterday?

Mr. Smith: I object to that as incompetent, irrelevant and immaterial, leading and suggestive.

The Court: Sustained.

By Mr. Butler:

Q. Is it pure air? A. It is not pure air.

Q. Now, have you observed the pipes employed to conduct the gaseous medium from the Alsop generator to the flour, to be bleached by it, in the agitator?

Mr. Smith: Pardon me, I want to object to this, Your Honor, as incompetent, irrelevant and immaterial, the witness
149 not having shown himself at all familiar with the mill in which this flour was bleached. Now, that simply raises the question, if the Court please, as to whether or not we are to deal specifically or generally, in this case, and, whatever the ruling of the court, why, I am willing to take our chances on that; but I want to call Your Honor's attention, now, so we may know where our bearings are to be.

The Court: Well, without committing myself for or against that proposition, I assume that these Alsop processes, made by this concern at St. Louis, are all made of one and the same patterns.

Mr. Smith: Well, I don't know on what theory Your Honor assumes that. There is no evidence of it, nothing to show how they are installed in the mill, as to how far this air is carried after the electrodes have generated this, or what would be the effect of carrying it a small distance or a long distance. I don't think we have a right to assume any of these things.

The Court: I am not, except on the basis of the evidence of this gentleman from St. Louis, who told in a general way, that pure air was brought into this cylinder, or compartment, where these electrodes are, one stationary, and the other moving vertically by crank motion, and, from there carried through a pipe to a box called an agitator. This is what the gentleman from St. Louis said, as I understand it. If I am wrong in that, —if I am confusing that with—

Mr. Butler: (Interrupting): It was this witness, who described the process, I think.

Mr. Smith: The gentleman from St. Louis didn't testify to it, at all.

The Court: Oh.

150 Mr. Butler: No, but they come in and say that this process treated this flour, and we have the right—well, Your Honor has ruled.

The Court: Of course, as I said to you gentlemen, in Davenport, I don't want to be confusing this with what—I went and saw one of these things.

Mr. Smith: Yes.

The Court: But I am not testifying. I went and saw myself, how it is done, I think I am confusing that with this.

Mr. Smith: I think you are confusing your general knowledge with what has been testified here, Your Honor.

Mr. Butler: No, the witness has said that sometimes there is a glass you can see in.

The Court: Now, I saw that. Now, the agitator, I didn't see in it, and I don't know as anybody says you can.

Mr. Smith: My objection goes to the point that this witness hasn't shown that he ever saw or knows anything, personally, about this mill from which this flour came. Now, the question presented, Your Honor, is, whether or not this witness will be permitted to testify about conclusions which he derived from the inspection of some other mill, or, is it to be limited to a knowledge derived from the inspection of this mill?

The Court: It will be limited to the Alsop process, but to that extent general. The Alsop or Andrews process. We will call it Alsop, for short.

Mr. Smith: Yes.

The Court: Go ahead.

The Witness: Judge, I believe I am confused on the question, now.

The Court: The objection is overruled, and the defendant excepts.

Mr. Helm: If Your Honor please, I notice Mr. Smith has not been saving his exceptions, at all times. May it be
151 understood that the exceptions are saved, at all times?

The Court: No, but, as a matter of courtesy to counsel, I have saved them for him.

Mr. Helm: So that, you desire to have them stated?

The Court: I want the exceptions, on the pivotal points saved, of course, but I can't give you general authority to fill in objections, in the record, without any limitation.

Mr. Smith: No. If you don't make the exception, and I want it, I will put it in the record.

The Court: Yes, because I assume they are matters of importance, and I want the exceptions saved.

Mr. Smith: Yes, and if you don't save them, and I think they ought to be saved, I will state them.

The Court: Very well.

A. (continuing) Yes, I have observed the pipes.

By Mr. Butler:

Q. And what did you observe about that?

A. Well, it depends largely on how long the pipes have been in the mill, and of the material of which they are constructed. These pipes wear out, after a time. They become rotten, so you can take them right in your fingers, and crumble them all up, and they have to be replaced by new pipes, unless they are made of some material that is not attacked by the gas. If made of the common iron, or galvanized iron, their life is not so very long.

By the Court:

Q. How long? A. Well, from a year to—

Mr. Smith: (Interrupting) What did he say?

A. (Continuing) Sometimes vary. Of course, it depends on the thickness of the iron. It is simply a quantitative question. It is eating all the time, and the bigger the iron, the longer it will last; that is all.

Q. Now, tell us how this air, modified by electricity, and containing nitrogen peroxide gas, destroys iron pipes. A. How it destroys iron pipes?

Q. Yes, just make that as plain as you can.

Mr. Helm: Does he say that it will destroy them?

Mr. Butler: Yes, sir, it does.

A. The peroxide of nitrogen, when it comes in contact with water, immediately splits up, and it forms two acids, one of them nitrous acid, and the other is nitric acid, one of the most

powerful acids known to chemistry, one of the most corrosive, one of the greatest solvent reagents that we use in chemistry, is nitric acid, and of course this nitric acid will act, in time, anywhere, and every time that it has an opportunity to act. Comes in contact with these pipes, and it acts. That is all there is to it.

Q. And, in the ordinary use of the Alsop process, is it the gas passing through, or the medium—the air and the gas mixed, together, passing through the iron pipe, which goes into the agitator for the purpose of bleaching the flour? A. It is.

Q. And it is at the same degree of dilution in the pipe as in the agitator?

A. Same degree. Well, let me see. Now, wait a minute. I want to be right about this.

Q. Or, does the opening of it into the agitator further dilute it? A. It further dilutes it, Mr. Butler.

Q. Further dilutes it? Now, generally speaking, about how large are these agitators, or boxes, or, do they vary? I want to know, is it as large as a barrel, or a hogshead?

A. Oh, it is larger than that. They are usually made—well, those that I have seen, for instance, take the upright agitators, they are like this—(indicating).

By the Court:

Q. Well, now, say how many feet.

A. Oh, four or five feet in diameter, or four feet, we will say, in diameter, or three feet, along there. It depends altogether on the size of the mill, and how large a stream is treated.

153 By the Court:

Q. Well, you have given the diameter. How long?

A. Well, they would be from six to eight feet high—as high as a man could reach.

By Mr. Butler:

Q. Now, with respect to nitrogen peroxide gas, may it be produced other ways than by the flaming arc which you have described as a part of the Alsop Process?

A. Almost innumerable other ways, yes, sir.

Q. And, for example, can you—

A. (Interrupting) For example—

Mr. Smith: (Interrupting) I object to that, Your Honor, as immaterial. It is shown how it is produced in this instance. We are not investigating methods which are not in controversy here, are we?

Mr. Butler: Well, no, that isn't the purpose, Your Honor may see. But this witness has given a good deal of time and

study and research to the effect of the application of oxygen upon flours and other things.

The Court: You may answer.

Mr. Smith: We save an exception.

The Court: Claimant excepts.

A. (Continuing) One specific instance, anyway. For instance, like this was a piece of iron, and immerse it in nitric acid, and warm it, and peroxide fumes will come off, or better, take copper, and nitric acid, just about take the common copper and nitric acid,—it is an experiment that any one can make,—and you will see the same dark, brownish red fumes, with suffocating odors, come off. They are peroxide fumes, and there are so many different ways, I don't suppose, perhaps, a jury would be interested in how we get the absolutely pure. It is complicated, and—

Q. (Interrupting) Well, what I want to call out, is this: are the characteristics of nitrogen peroxide gas exactly
154 the same, however produced,—whether by the Alsop process, the flaming arc, or by chemical methods, or other methods?

A. Nitrogen peroxide is always nitrogen peroxide, wherever you find it, and under whatever circumstances made or produced, the same as water is water. It is a definite chemical compound.

Q. Yes, that is what I was trying to make clear.

Q. In your work have you become familiar with the process of the manufacture of flour from wheat? A. I have.

Q. And with respect to the fitness of new wheat, as compared with old wheat, for milling purposes? A. I have.

Q. Characteristics of the flour made from both?

A. I have.

The Court: Speak up, please.

A. (Continuing) I have, yes sir.

By Mr. Butler:

Q. And the effect upon wheat flour, by the lapse of time, storage,—called aging? A. I have.

Q. I would like to have you describe to the jury the milling process, having regard to the use of wheat, new and old?

A. Any kind of wheat?

Q. Yes, both ways, so as to make comparison between the two, if that is convenient, or, just describe the process, if you like. Describe the milling process, first, and then perhaps, by more appropriate question, I can call for what I am trying to get at.

A. Well, in the milling process, the first step, of course, is to clean the wheat, and clean it very clean; and that is done, even, if necessary, with scrubbing. The next point, in the modern roller mill, is to temper the wheat. That is what the miller calls "tempering" it. He allows it to go through a suitable box, and blows in a certain quantity of steam. Now, that is a very important part in the process. The reason is that that toughens the outside. It makes it tough, so that, when

he goes to put it through his rolls, it won't break all up
155 in fine particles, and go through his sieve with his flour.

Well, as soon as the wheat is tempered, it is run, then, into a set of rolls. The rolls may be divided, roughly, in two classes. Some of these rolls have little corrugations on them, and those rolls, one of them turns this way (indicating), and the other runs in the opposite way, so they are both going in the same direction, but one goes faster than the other; and the second class of roll is a roll that is polished perfectly smooth, and they run, by means of belts, just in the same way. Well, when the wheat is caught between them, you can see, then, that it is caught,—it is pulled,—it is crushed. Well, now, the first step, without going into all the numerous details,—there wouldn't be time, today, to tell them all,—the first step is, then, they go into these rough, corrugated rolls, and they touch very lightly, indeed. The bran is, almost all of it, loosened at this point, or a large part of it, at least, and it takes away some of the flour, and the shorts, also; and the grain, itself, is cracked into coarse kernels, like sand. You could take it in your fingers, you know, and rub it. These coarse pits, now, that are made in this first roll, are called "middlings". That is the technical term. They are known as "middlings", and it is by grinding these middlings that the best flour,—that is, the highest priced flour,—is made. It is from the grinding of those. Well, these middlings are purified. They put them through a purifier, and that cleans them all off. It takes off the bran,—blows the bran all away, and leaves them. Sometimes this is put on the market and sold, under various names, as breakfast foods—just that better part of the wheat. Well, now, at the time that these middlings are made depending on the wheat that you are grinding,—if it is a real starchy wheat, the very first time through the break-rolls, it shakes out a little white flour, that the miller calls the "break" flour. This break flour

is usually run into the patent flour, or, just as the
156 miller may choose. Well, now, when these middlings have been cleaned all up, and made as pure as possible, it is carried on over to these smooth rolls, and these smooth rolls begin to crush them, and makes them fine; and from there the stream is put through a bolting cloth, and things

like that, and some of the branny portions, or the inside coats, are removed, and we get a stream, then, of patent flour. And that is called patent flour, made from the best, or middlings. Well, as I said, in the first break-rolls, the bran has some flour adhering. They don't throw that away, these days. The millers are grinding very close. As an illustration, I heard one man say—

Mr. Smith: (Interrupting) I object to that. I object to the witness testifying to what some one else told him. He was starting in to relate what he heard some one say. I object to that, as hearsay testimony.

The Witness: I will take it back, and say it, myself.

Mr. Smith: I didn't intend to scare the reporter, but it seems I did.

Mr. Butler: Yell before you get up.

Mr. Smith: No, I'll get up and then yell; I'll warn you.

The Witness: Well, it was immaterial, anyway.

Mr. Smith: Yes, sir,—that was just what I was going to object for.

A. (Continuing) Well, it is immaterial. That is taken again, understand. The flour is used again. You can take it from me that there is no flour left. Well, that flour is saved, and some of the latter flour, on the reduction of those middlings, is also saved, and it goes into a flour that they call "clear" flour. Now, we have got the highest—the patent flour, came from the middlings, and the remaining flour is called "clear" flour, but there's some of it almost shorts.

They are near shorts. It is almost cattle feed. There's
157 three or four per cent of that, sometimes,—depends on the wheat, and that isn't put on the market, as a rule. It isn't sold. The miller has got a contemptible name for it, because he despises it. He calls it "red dog" flour, and that red-dog flour,—but sometimes it flours very high, and if it's very low they save up this red-dog flour until they get a very large quantity of it, and then they regrind it, and get baker's flour, or something like that. I don't know,—it depends on the miller. There isn't any uniformity.

The Court: For us lawyers to eat at hotels?

The Witness: Yes.

The Court: I see.

Mr. Smith: I don't know whether that is the case where they are in the hotel,—the jurors—but I don't think it is, at the one we are stopping, Your Honor.

The Court: I don't know. I cannot say about that.

A. (continuing) Now, those are not the only kind of flour that are known, or that the miller makes. Now, very often he begins in this way: He unites the stream—the patent flour and the clear flour; he runs the two together. That takes all the flour there is in the wheat, and he has got a good name for it. He calls it “straight” flour. It is straight flour.

The Court: We will take—

A. (Continuing) And it includes all the flour in the wheat.

The Court: I always have a mid-session recess, gentlemen, but a very short one—five minutes. Please be back in five minutes.

(Recess then taken for five minutes.)

The Court: Call the jury at the door, Mr. Bailiff.

James H. Shepard, resuming the stand, was examined further, and testified as follows:

158 By Mr. Butler:

Q. I think, at the time we paused, you had concluded, Professor, a description of the general features of the milling process. A. I had.

Q. In your laboratory work, do you mill flour?

A. Oh, yes. I have milled very many samples.

By the Court:

Q. You what?

A. I have milled very many samples. I have an experiment mill, and I carried on an investigation, on all of the new things that the government introduced to this country. I milled them out, and made flour from them. I made these middlings, and employed those for making macaroni. That is, these new Durum wheats, and in comparison with our spring wheats, and the Kansas red wheats, and work of that kind. I have done a very large amount of that kind of work.

Q. Now with respect to the conditioning of wheat for milling I would like to have you—

Mr. Butler (interrupting): Oh, I didn't observe you were absent, Judge Scarritt. We had just spoken of his experimental mill, with which you are familiar.

Q. (Continuing) With respect to the shipment of new wheat, as compared with old wheat, for milling, other things being the same? A. I would like to get your question.

Q. Well, what I am trying to get at, is this. Is new wheat, taken right from the harvest field and threshed out from the shock, as fit for milling, or as well adapted for milling, as would the same wheat become, if stacked before threshing, and if stored, after threshing, for a time?

A. No, it would not.

Q. Well, now, explain that to the jury, about the conditioning—that is what I am trying to get at.

A. Well, when a wheat is first harvested, the best practice is, to cut it,—especially, that is, we cut it, as we say, a little bit on the green side. We allow it to dry in the
159 shock.

Mr. Butler: Can you hear him, Judge Scarritt?

Mr. Scarritt: I heard him say "with us".

Mr. Lyons: That is, South Dakota.

Mr. Butler: He says he cuts it a little on the green side. Just a little before ripe, I think?

Mr. Scarritt: In South Dakota?

Mr. Butler: The best read men, I am asking about.

A. (Continuing) Then, after the wheat is dried in the shock we put it in the stacks. Well, as soon as it gets in the stacks, it begins, in a very few days, to sweat. It becomes warm. The straw is tough. You could take it, and wring it, this way, and the wheat undergoes a change while it is going through this sweat in the stack. It comes out plumper and it has a better color, and it has a better taste, and better flavor, and it is better adapted for milling purposes. Well, now then, as soon as the wheat has become dry in the stack, it is threshed and put in bins. Now, the wheat undergoes the second sweat, in the bin, and when it becomes dry, there, it is in prime condition for milling. It is in prime condition for milling. It makes a good flour, and that is what we call a properly aged and conditioned wheat. Now, as to the cause of these changes, we have been in the habit of looking at them just as—we say they sweat. That is, the physical—the external evidence that some kind of changes are going on. We now know that these changes are due to very minute quantities of bodies—

The Court (Interrupting): Professor, don't lean back. I am afraid you will fall back.

The Witness: No, I won't.

The Court: Well, you keep me nervous.

A. (continuing) Well, these bodies are called enzymes. Called enzymes.

160 By Mr. Smith:

Q. What are they called, Doctor?

A. Enzymes.

Mr Butler: Enzymes—e-n-z-y-m-e-s—I had the same trouble learning the words.

A. (Continuing) Now, these are secreted from Durum grain, and these plants decrease these enzymes, and their office is a digestive one—to digest, and change over. For instance, when the wheat is planted in the ground, these enzymes begin to act on the starch that is stored up in the wheat, and they will turn it into sugar, and it becomes soluble, and the new plant that has thrown its root into the ground, and its leaf into the air, can drink up this sugar, and build it over into plant issue. There is another enzyme, in there, that attacks the protein, and makes what you call the gluten in the flour, or the protein in the wheat, and renders that more soluble. Now, whenever you change or alter the condition of a kernel of wheat, there is implanted in it an instinct, as we might say, to germinate—to reproduce itself, again. Now, you place it in the stack, and it is dark, in there, and warm. It is somewhat warm, and it immediately endeavors to germinate. There is a change going on—modification going on of the contents, but there isn't enough water, there, and sufficient to cause the wheat to germinate, and when it finds it is useless to try to grow in there, it quits. It subsides. The sweating stops. The stack dries out, and the same thing happens again when the wheat is stored in the bin. It tries once more. It has got in another place, and it wants to germinate. Once more it endeavors to do it. Now, if it is taken to the mill—the wheat, at this point, and ground into flour the general impression is that the life is all ground out of that kernel. Well there can't be a worse misconception. It is absolutely untrue. There are millions and millions of cells in the flour that are absolutely intact. They have got the enzymes there. They have got the whole machinery—the whole protoplasmic matter, and when we come to the form of flour

161 there is once more in these cells an endeavor to grow, if you please, and the flour undergoes another sweat. It developes agreeable odors, and so on, like that, and it improves

in quality and in color, and like that; and this, we call natural aging. Now, as an illustration, just before I left home, I sent my man down to the mill, to bring up some loads of feed. He brought up some sacks, there. When we went to open the shorts it had been standing there in the sacks, until once more this sweat,—this enzymotic work had begun, and it had got so warm that when I ran my hand down there it was almost uncomfortable. Quite a large amount of heat is developed in this natural aging. Well, if you take a raw wheat, and grind it,—that is one that hasn't gone through this natural aging,—you will get some flour but that flour will not be as good as the flour from the properly aged and conditioned wheat. Everybody knows that, and if you happen to bring home a sack of it, as I have done, sometimes, you will surely hear from your wife, because it won't bake right. It won't make a good loaf volume, and she will say "There is something the matter with this flour, now, and I want you to take this flour back, or have it sent back. There is something wrong with it. It don't work right. It don't raise right. When the bread is baked, it don't have the loaf volume, and it is altogether unsatisfactory." Now, you take that flour, and leave it a while, and it will go through this aging, or sweating process, and it will improve wonderfully, and I have known where flour like that had been sent back, and stored in the mill for a while, and sent right back to the house, and it was perfectly satisfactory. It would not be so good, though, as flour that had been made from wheat that had been handled and treated just right. Well, now, then, even when wheat has been handled and ground into flour—I mean properly aged wheat,—when
 162 the flour is first ground, it is not so good. It needs this other conditioning. This natural aging that it goes through, after it has been made into flour.

Q. Do I understand the aging and conditioning of wheat for milling, by going through the sweat as you have described it, is due to the action of enzymes, as you have described?

A. Yes. Of course, there are other cell forces at work—this protoplasmic matter in the cells, and there is a balance. One tears down, and the other builds up, but there are chemical changes.

Q. Now, as to the flour, or quality of flour made from new wheat—that is, wheat that has not been aged or conditioned, compared with flour made from the same wheat, other things being equal, that has been aged and conditioned, what can you say as to that—the quality or flavor of the flour?

A. We can say that the flour made from the aged and conditioned wheat is a better flour than that made from the raw wheat, I tried to make that plain to the jury.

Q. Yes. Now, as respects the flour, or quality of flour, freshly milled, whether made from new or old wheat, as compared with the quality of the same flour, after the lapse of time and storage under normal and proper conditions?

A. The stored and properly aged flour is always the better flour than the freshly milled flour, no matter what source it comes from.

Q. What changes take place in this natural aging of flour, as respects its appearance, and the various constituents of the flour, if you know?

A. In the first place, there is a change in color. The flour grows a little lighter colored. It grows to a beautiful, creamy white color. In regard to the gluten, the gluten is improved in its toughness, in its elasticity, and it makes a better volume of bread. In regard to its flavor, by going through these sweats, or these enzymotic processes, there are agreeable flavors and odors that are developed, and these appear in the bread, when the bread is baked.

163 Q. Now, as respects the color and appearance of flour, made from new wheat, as compared with flour made from light wheat, which has been conditioned, I would like to get you to speak of that.

A. The color of the aged, properly conditioned wheat, is lighter, and of a more desirable shade, than that made from the unconditioned wheat.

Q. You said the color of the wheat—you meant the—

A. (Interrupting) I mean the color of the flour.

By Mr. Elliott:

Q. The what?

A. The color. This is what I mean to say, Mr. Elliott, that the color of the flour made from properly aged and conditioned wheat, is better than that of flour made from new wheat, right from the shock to the—

By Mr. Butler:

Q. (Interrupting) And when you say "better"—the flour is comparatively light in color, or white. I would like to have you say in what respect the color is different, as to hue.

A. It is a difference in the shade of the color. The best patent flours have a very—that is, our best patent, from number one Durum, a number one, wheat, are of a very light, creamy tint, and that has been used as a standard, and that flour is very good flour, and consequently, anything that more nearly approaches that peculiar color, is, generally speaking, called better. Now, as far as I am concerned, myself, I like the one, or some of the Durums, better, because it is a great deal darker than all these, but it isn't my say-so. We are talking, now, about commercial processes, and the commercial

usages—what the millers understand, and what the people understand by preferable colors.

Q. What effect upon the color of flour, has the application of the Alsop process. A. It bleaches out the color.

Q. Makes it lighter in color,—of lighter hue—of whiter hue?

A. Makes it lighter in color. Sometimes it will almost approach chalky whiteness, depending on how it has been handled.

Q. Will it have the effect you have just described upon flour made from new wheat, which has not been aged and conditioned? A. On any flour.

Q. On any flour? A. Yes, sir.

Q. And, the effect upon color of flour is the same, without regard to the grinding of the wheat?

Mr. Elliott: I object to Mr. Butler testifying.

Mr. Smith: That is leading.

Mr. Butler: Well, I think it is a proper question.

The Court: You may answer it. Go ahead Professor.

A. It tends to bleach. It tends to bleach them to a standard color, irrespective of the age of the wheat, or previous condition.

By Mr. Butler:

Q. What effect would it have upon a clear flour, as respects color? A. It would make it lighter.

Q. What is the difference, in color, between a clear flour and a patent flour, when neither is bleached. Which is the lighter. A. The patent flour will be the lighter.

Q. What is the difference in color between a clear flour and a straight flour? Which is lighter?

A. A well milled straight flour should have a somewhat lighter color than clear.

Q. What effect does the bleaching process have upon the straight flour, as respects color?

A. It will make it lighter in color.

Q. By the application of the Alsop process for bleaching flour, have you ascertained whether or not any substances are added to the flour, or imparted to it? A. I have.

Q. What is the truth in that regard?

A. The truth of the matter is, in regard to that, that the nitrogen peroxide, of course, is added to the flour. Certain chemical changes, as it unites with the water, makes

165 the two acids, and, therefore, we have nitrates from

the nitric acid that has been added, and we also have nitrites, or nitrous acid, itself, which has been added.

Q. Is there water in flour? A. There is.

Q. How much, ordinarily?

A. Well, with us, it runs from ten per cent to twelve per cent, depending on how the flour has—

Q. (Interrupting) In bulk, or weight? A. By weight.

Q. By weight? That is, one hundred pounds of flour, or, we will say a barrel,—call it two hundred pounds,—would have twenty pounds of water—twenty to twenty-four pounds of water? A. Yes, sir.

Q. And is capable of being extracted directly from the flour? A. It can be extracted directly from the flour.

Q. And, when this gaseous medium—atmosphere and nitrogen peroxide mixed,—is introduced into the agitator, where the flour is in a state of agitation, what chemical changes take place then, by reason of the presence of the nitrogen peroxide gas?

A. It immediately united with the water, and changes into two acids, one nitrous acid, and the other nitric acid. That is the first step.

Q. Describe nitrous acid.

A. Nitrous acid is a rather weak acid, as we describe it. It has never been prepared, pure, only in water solution. If placed in an open dish, or in an open bottle, it is constantly giving off peroxide of nitrogen fumes, reddish fumes, arising in the air. If it is exposed to the air, it will take up oxygen, and go into the next, the higher acid,—go to nitric acid,—to the stronger acid. It will unite with the alkalies, too, from salts, called the nitrites, and with the metals, to form salts, called the nitrites.

Q. Now, that is nitrous acid? A. That is nitrous acid.

Q. Now, as to its character—whether poisonous, or not?

A. It is a poisonous substance.

Q. As to the character of the nitrites, which are
166 formed by a combination of nitrous acid with the bases to which you have referred?

A. They are poisonous, also.

Q. Are such nitrites formed in flour, by the application of the bleaching process—the Alsop process, referred to in these pleadings?

A. There has been some controversy as to whether nitrites have been formed or whether it is the nitrous acid. It is salts that is there, and we have been in the habit of speaking of the two as nitrite reacting material.

Mr. Elliott: Now, who does the witness mean by “we”?

The Witness: I mean, by "we", the chemists of the United States, and the honorable attorneys who are engaged in this flour—in prosecutions and in their investigations. We have always referred to it as nitrite reacting material. There is some evidence, I think, that will be brought before this jury, to show that this is principally nitrous acid that is in the flour.

By Mr. Butler:

Q. Now, do I understand this interchange between you and Brother Elliott, on his interruption, that nitrite reacting material is the broader term, and includes a nitrite—that is the combination of nitrous acid with the bases, and would also include the nitrous acid, itself? A. It would.

Q. Yes?

A. Anything that will give the reaction for nitrous acid, whether it is a pure acid, or whether it is a salt of that acid.

Q. And, by "we", you referred to yourself, and Mr. Elliott, among others, as referring to that condition of affairs as nitrites?

A. Well, that was what was uppermost in my mind. I was thinking of Mr. Elliott. I must confess we have talked about it that way.

Q. You mean, in the suit of the Russel Milling Company, against the Pure Food Commissioner of North Dakota?

Mr. Smith: I object to that as incompetent and irrelevant.

167 The Court: I can't see the materiality of that.

Mr. Smith: You can't go into the question of where these gentlemen have met together.

The Court: No, that might be unsafe.

Mr. Smith: Your Honor, I don't think we had better go into that.

The Witness: That lets us out, Mr. Elliott.

Mr. Butler: Your Honor will observe that it isn't our side that is afraid.

Mr. Smith: Well, I don't care about embarrassing the Doctor, too much.

The Court: Well, this is only thrown in as a little bit of witticism. Perhaps it is just as well left out. Of course, I mean nothing objectionable to either side, here. Mr. Elliott, I guess, understands that.

By Mr. Butler:

Q. Now, as to the nitric acid. Now about that? Is that capable of isolation? Is it [staple], or weak, or strong, or what does that do, in flour, when introduced by the Alsop process.

A. Nitric acid is one of the three most important acids known to chemistry.

Q. By the way, is that sometimes called aqua fortis?

A. Aqua fortis, or strong water. That is the name for it. It is a very corrosive acid, and you can buy it at any drug store, anywhere in the United States, probably, and it is a very corrosive acid, a great solvent, and it unites with metals to form salts, that we call nitrates—a common one that everybody knows is silver nitrate, or lunar caustic, and potassium nitrate, or saltpeter is well known to everybody, and sodium nitrate is known to every farmer in the country that uses fertilizer—Chili saltpeter. These are very common compounds, that are formed from nitric acid. Now, this acid is one of the most corrosive acids known. If you get the least mite of it on your fingers, it will turn them to a yellow color, and if it is dropped on clothes, it will burn holes through the clothes. It
168 will dissolve all the metals, excepting gold and platinum, and some of the rarer ones, that is to say tin; it doesn't work very well on tin, but all the common metals, it will eat them up, as we say. It will dissolve them, and make them into salts.

Q. Now, is there any difference in the changes made in wheat flour by bleaching by the Alsop process, and the changes which take place in natural aging?

A. They are not at all comparable.

Q. Will you compare them, to the jury, for the purpose of contrasting them?

A. In the first place, they are both—both the natural aging and the bleaching by the Alsop process, causes the color to become lighter, and, in so far, they are comparable. When we have gone that far, that is as far as we can go. If that is pushed to its ultimate analysis, the color that is made—the color that is made is always uniform, on the natural bleaching. It doesn't assume the chalky whiteness that the bleached flour does, when it is bleached, very frequently, at least. Then, again, as I have already explained. This enzymic action that goes on while the flour is naturally aging, produces agreeable flavors and odors, while on the other hand, the Alsop process introduces disagreeable odors and flavors. By natural bleaching, the flour begins to improve, and goes on and improves, and improves, and improves until it gets better—until it reaches, its highest point, we will say. This will last over a period, sometimes, of two or three months or even longer, if it is proper-

ly handled. The flour that has been bleached by the Alsop process is just as good, the minute it comes out of the bleacher, as it ever will be. There can be no change in that flour, that has been bleached. There will be no enzymotic changes. The introduction of these strong acids has caused the enzymes to quit work. They don't go on. They can't do any more work, and the result is, that the only change that can come to the flour, bleached by the Alsop processes, will be, away
169 along at some time when it is said bacterial action sets in, and the flour begins to go back and decay. The same thing will happen to flour that is naturally aged. All flour has its life. It doesn't live forever. It can't live forever. And the time will come when both of them are attacked by molds and fungae, and various things of that kind, and will begin to decay and deteriorate.

Q. Is the digestibility of flour affected favorably or injuriously, or at all, by bleaching it by the Alsop process, at the time it is milled?

A. I have made a great many experiments along that line, and I have learned that the digestibility of the bread, made from flour bleached by the Alsop process, is damaged—is injured.

Q. As to digestibility?

A. Its digestibility is injured.

Q. Can you give us an idea of the quantities of these nitrites or nitrite reacting material, that is added by the bleaching by the Alsop process, or that is required to effect substantial bleaching?

A. That will depend on a number of factors. Some grades of wheat that are very good grades of wheat, and naturally produce a rather light colored flour, only need small quantities. Other wheats, that produce dark colored flour—yellow flour—requires larger quantities, and the truth of the matter is that nobody knows—the miller, himself, doesn't know how much peroxide he adds. He simply adds enough to reach a certain color, be it little or be it great. In my own experiments, I used from two and a half parts per million, along down the scale—or up the scale, to one hundred eighty parts of nitrogen peroxide.

By The Court:

Q. One hundred eighty out of a million?

A. Yes, that is, in a million anything,—a million pounds would be a hundred and eighty pounds of the peroxide.

Q. Yes, I understand.

A. (Continuing) Or, in a million grains or a million anything, by weight. And we went all the way from two and a

half parts per million up to one hundred eighty parts
170 per million. In the flours with which I was working,
I reached the points where the flour began to become
very white, when I was using from—well, from twenty to forty
or sixty parts per million.

Q. And did you observe the effect upon the color?

A. I did.

Q. Of the application of various quantities? A. I did.

Q. From this two and a half parts per million, up to one
hundred eighty parts per million? A. I did.

Q. Now, will you explain to the jury what the color is,—
that is, what are the primary colors, alone or in combination,
in the wheat flour?

A. The coloring matter of wheat flour, or the color of
wheat flour, as we see it, is not a simple color. It is owing
to a mixture of two colors. We all know how different colors
can be mixed, and they will produce another color. Take
two colors, mix them together, and you will have something
of a different color. Now, the color of the wheat flour con-
sists of two of the primary colors. One is yellow, and the other
is orange. Now,—

Q. (Interrupting) In what relation? Well, go ahead.

A. (Continuing) Now, the darker colored wheats have
more of the orange. The darker colored flours have more of
the orange and the lighter colored have more of the yellow.
The yellow isn't so pronounced, you know, just a light yellow
—a very light yellow, and the orange, of course, has quite a
deeper shade, as you all know.

Q. Well, now, is the effect upon both primary colors, the
same, upon the application of this bleaching medium used in
the Alsop process—that is, does the orange and yellow reduce
equally, as the process goes on? A. No, they do not.

Q. Can you give the—

A. (Interrupting) They both begin to fade. Would you
like the exact figures.

Q. Well, generally, the substance of them, and later I will.

A. Yes. The orange begins to fade away. It fades away,
first. The yellow also fades away, but you will soon reach a
point, if you keep on adding more peroxide, where the orange
disappears entirely, and, no matter how much you add
171 after that, that orange color never will come back
again; but, when you get down very near to the zero
point on your yellow, when your flour is almost chalky white,
you put in some more peroxide, and the yellow will begin to
come back again, and, as you add more, you will notice an in-
crease of the yellow color. There is a point, but it is not of
practical importance, I am sure, in this case, because the
millers don't go to that point, because they couldn't sell their

flour. If it were overbleached, you would find you had very much more yellow, in overbleached flour. That is, where it was away over-treated. You would have very much more yellow, than the flour when you first started.

Q. That is, by keeping the flour exposed long enough, in one of these agitators, it will turn yellow?

A. Yes, and by adding more gas to it.

Q. Yes, or by more gas, owing to either the increase of the strength of the medium, or the increase of the time of the exposure, I suppose?

A. That would be immaterial. It would be immaterial as to that. Either one would affect it, provided you maintained a constant supply of your gas, at the one common dilution.

Q. Now, I want to get the effect upon the quality—the odor—the color of the flour, the odor, and the taste, and the smell and so forth, after this bleaching has eliminated all of the orange, and has reached such a stage that the yellow begins to increase.

A. Well, the odor of flour is destroyed when it is bleached, no matter how much you put in. Just two and a half parts per million, will give to that flour an odor that is very disagreeable, to me, and at the point you have mentioned, it is simply a question of intensity, and not a question of kind. It keeps smelling a little worse and worse, because a little stronger and a little stronger, that is all.

Q. Now, have you prepared figures, showing the result of your color measurements, as against applications of different amounts of bleaching, by this process? A. I have.

172 Q. You may refer to them.

A. (Producing paper) I use two kinds of flour. First, patent flour. That is, a genuine patent flour, and also straight flour. My original patent flour, unbleached, had twelve points in the orange, and thirteen in the yellow.

Q. That is, the amount of primary color?

A. Of the primary color.

Q. As of twelve to thirteen?

A. Yes, when I added two and a half.

By Mr. Scarritt:

Q. How was that? A. Twelve. It is a decimal.

By Mr. Butler:

Q. It has a point before it?

A. Twelve hundredths, and thirteen hundredths, on the Lovebond scale, but we can speak of these as points, and that will make it plain to everybody.

By Mr. Helm:

Q. Twelve of orange, and thirteen of yellow? A. Yes.

By Mr. Helm:

Q. That is, twelve and thirteen, before any of the flour was treated?

A. That is the natural color of the flour.

By Mr. Butler:

Q. Which flour was that—the straight or the patent?

A. That was a patent flour, made from Dakota number one winter wheat.

Q. Go on.

A. I added four and a half—four and five tenths parts per million of peroxide. My orange sank to two. That is, .02—two points, in the orange, and my yellow, which was thirteen, sank to eleven. You see, there is a great difference. The orange goes faster. When I use—I won't name all of them. It will illustrate it, when I used as high as eighteen parts peroxide, per million my orange didn't seem to 173 be affected, there. It may have been .02 and my yellow fell to .06. That would have been probably the optimum point for bleaching that flour. Eighteen parts per million would have brought that flour down to about what I understand the standard color is, that they are working to. Now, when I used seventy-two parts per million of peroxide, my orange fell to zero, and my yellow rose to eleven. I will give one other figure. When I used one hundred eighty parts of peroxide per million, the orange still remained zero, and the yellow had risen to thirteen—, just the point where I started from, on the yellow.

Q. You started at thirteen?

A. I started at the point, thirteen, and it came back to thirteen when I had used one hundred eighty. On the straight flour, the natural color of the straight flour is fifteen points in the orange, and twenty in the yellow.

The Court: Twenty?

A. Twenty, yes, sir. It is darker, you see. As compared—it is made from the same wheat.

The Court: I understand.

By Mr. Butler:

Q. That is, straight?

A. Straight flour.

Q. Yes?

A. I will only give two more. When I used forty parts—when I used [seven-two] parts per million on the straight flour, my orange sank to .04, and my yellow came down from twenty to fourteen, with one hundred eighty parts. Once more, my orange became zero, but my yellow had risen to nineteen. I started with twenty, and I got it back again.

Mr. Helm: How many parts did you use, there?

Mr. Butler: One hundred eighty.

The Court: One hundred eighty per million?

A. Yes sir.

By Mr. Butler:

Q. Now, suppose that flour subjected to this process had eighteen parts applied—eighteen parts per million,—what amount of nitrite reacting material would be recoverable by treating the flour by water, if the analysis was made immediately afterwards? Have you studied that so as to be able to transpose that into other terms? For example, take eighteen parts per million of nitrogen-peroxide. You have told us that that produces nitrite reacting material, in the flour. Now, suppose you analyze the flour immediately, or soon?

A. Within a day or two?

Q. Yes. How much of these eighteen parts of nitrogen peroxide would be accounted for?

A. In my analysis?

Q. In your nitrite reacting material, so recovered, is what I am trying to get at.

A. Yes. Well, I made a great many experiments along that line, and, under no circumstances can I recover it all—that is, the theoretical amount. But I have been able to recover, as nitrites, from ten to fourteen per cent. From ten to fourteen per cent as nitrites, of all the peroxide used. That is, if I use eighteen parts peroxide, I could get back ten parts of it as nitrites reacting material—ten per cent of it, I would say.

Q. Ten per cent of it?

A. Yes. That would give me 1.8 as nitrite reacting material.

Q. For example, then, if by testing for nitrite reacting material, the flour, a day or two after it had been bleached, you would find two parts per million of the nitrite reacting material, that would indicate how many parts of nitrogen peroxide added?

A. Well, in a general way, but not absolutely and scientifically, because there are changes going on all the time and these changes depend on two things: First, how strong is your acid. How strong is your peroxide. The second, what is the temperature and, third, under what condition has it been stored? But there is a constant loss of this nitrite reacting material, all the while. That is, it disappears as nitrite reacting material, only to bob up as something else, a little farther

on, as we will see. So if we should find, say two parts of
175 nitrite reacting material, and we know that the flour
was freshly bleached, we would be pretty safe in saying
that at least twenty parts of peroxide had been used in bleaching
the flour, and, if the flour had been stored for a longer
time, and the conditions were unknown, it might be not only
twenty times that, but it might be five times twenty times,
of it might mean anything on earth. We couldn't tell anything
much about it.

Q. And what is the effect of lapse of time, upon the amount
of nitrite reacting material recoverable by this test?

A. It is constantly reduced.

Q. That is, under any ordinary conditions?

A. Under any conditions.

Q. Under any conditions? A. Under any conditions.

Q. And what becomes of it. Can that be told?

A. I believe we know what becomes of it.

Q. Well, tell us what becomes of it.

Mr. Smith: I didn't catch the answer.

Mr. Butler: He said, "I believe we know", as I understand
it.

The Witness: Yes, sir.

The Court: Repeat your answer; the gentleman didn't
hear it.

The Witness: I was just thinking about how I wanted to
state it.

Mr. Butler: But, your answer was,—I asked you if it was
known what became of it, and you said that it was.

The Witness: Yes, I did. Well, I think—well, I went to
say, I think—I know—"know it", that the nitrous acid and the
nitrite reacting material is being constantly changed into
nitric acid and that will account for the disappearance of our
nitrite material. But there are other ways by which it disap-
pears. Some of it will evaporate. That you can't help. Some
of it will be lost by evaporation.

176 Q. Some of it will?

A. Yes, but not a very large quantity, that way. This
gas seems to be held by the water that is in the flour, and also
by coming in physical contact with the flour, itself. And, so
far as I know, we haven't any evidence now, that this nitrite
reacting material, as we call it, is much of anything else,
except free nitrous acid.

Mr. Helm: Did you say nitrous acid?

A. Nitrous acid, yes sir.

The Court: I guess, Mr. Butler, we will stop at this point, 'til two o'clock, to which time Court is in recess.

(Recess taken accordingly)

Two o'clock P. M. Thursday, June 2, 1910.

The Court: That gentleman may assume the witness chair.

James H. Shepard, resuming the stand, was examined further, and testified as follows:

The Court: Read the last question and answer, please.

(Question and answer read as requested)

The Witness: I didn't quite finish.

Mr. Butler: You may go on, and finish.

A. It may be that some of the nitrous acid could be combined with metallic bases, but the probabilities are somewhat against it.

Q. (Handing the witness a bottle) I will call your attention to a bottle, which may be marked, "Government's Exhibit 6", and ask you if you know what it contains?

A. I do.

Q. What does it contain?

Mr. Scarritt: I can't quite hear your questions.

The Court: He asks what this bottle contains. The
177 witness says he knows.

By Mr. Butler:

Q. What does it contain?

A. It contains a mixture of nitrogen-peroxide, and air, about one part—approximately one part of nitrogen-peroxide, to four of air.

The Court: One to four?

A. One to four.

By Mr. Butler:

Q. About one to four?

A. It is dilute.

Q. And that is the same substance that is generated by the flaming arc in the Alsop process?

A. It is the same substance.

Q. And the same substance which you described this morning, as a heavy poisonous gas? A. Yes, it is.

The Court: Is it offensive, Doctor?

A. It is offensive.

By Mr. Butler:

Q. Gas, like all gases, it can be poured from that bottle into a cup or beaker, like that? A. It will.

By Mr. Butler:

Q. Perhaps there ought to be a tag or something, put on that bottle, if it is desired it be retained. What is your wish about that, gentlemen?

Mr. Smith: I don't know as I have any.

Mr. Butler: Well, then, I will ask that you open the bottle and show the substance to the Court, as it will pour from that bottle into the other vessel. Maybe the Court or Jury would like to—

The Court: (interrupting) You say that is one part peroxide and four of air?

The Witness: Of air, yes, sir. It isn't pure peroxide. That is, what I mean by that, it isn't concentrated peroxide.

The Court: Doctor, would you please stand around here, so both the jury and counsel can see you.

178 The Witness: Now, the light, of course, is not very favorable. If the gentlemen of the jury will notice, I think you can see the color begin to show in the bottle.

Mr. Butler: If you would put a white sheet of paper back of it, perhaps it would show up better.

The Witness: I would suggest it would be a good plan to raise that shade, there, so we can get a white effect on it.

By Mr. Butler:

Q. (Handing witness a white sheet of paper) If this is any use to you, you may use it.

The Witness: Thank you. Of course, if this were pure peroxide, it would pour much more readily, and I will have to pour somewhat carefully, and you are to look down in this jar, and see the color appear down there. Now, if this were lighter than air, when I go to pour it out, it would go up, and go away.

The Court: Well, now go ahead and make the demonstration.

A. (Continuing with demonstration) I don't know if you can see, as the air comes up in the jar, the air goes in on the upper part, just as if it were a liquid and, I think you can already see it, can you not?

A Juror: Yes, sir.

A. (continuing)—that I am getting color here, in the jar? (exhibiting the cork taken from the bottle marked as Government Exhibit 6) You can see the corrosive action of it, too, if you want to. You can see it has been eating the cork. It has only been in there about fifteen minutes. You see, the cork is all turned yellow. If I put my hand on it, just as it stands, it will turn it yellow. Now, it isn't a very pleasant thing to smell of, but a body can do it, with a sweep this way (indicating). If you want to get a little bit of the odor—if you want to get what the peroxide smells like, you can do it by sweeping your hand over it, that way. You can get some of it, mixed with the air. Shall I offer it to the jury.

179 Mr. Butler: I will leave that to the Court and Jury.

The Court: Yes.

The Witness: (to the jury) So you can see for yourselves. Of course this is diluted, now. The color is almost all gone.

A Juror: I can smell it.

The Witness: You see, it diffuses quite rapidly from the bottle. You can also, see, now, some whitish fumes, forming there, can you not? You see kind of a smoke?

A Juror: Yes.

The Witness: That is when it is uniting with the air, to form the two acids I told you about. Won't you just take it in your hands and get a little odor, and then pass it on? (handing bottle to the jury) No, not too much (to a juror).

Mr. Lyons: Give that to the stenographer, to be marked, please.

(Exhibit marked, "Government's Exhibit 6")

Q. Do the nitrites which are added, or nitrite reacting material, which is added to the flour, remain in bread made from the flour? A. It does, to a certain extent.

Q. And some recoverable from the bread?

A. Some of it is, yes, sir.

Q. And you made some experiments—tests, to find out the relation between the nitrogen-peroxide, after bleaching flour—the amount that can be recovered from the flour, in a day or two after the bleaching, and the amount that can be recovered from bread made from the flour? A. I have.

Q. You may give the jury the result of your experiments in that regard.

A. I made totals of the same flour, using different samples and employing different quantities of peroxide to each sample. Then we baked this into bread, also baked some un-

bleached flour into bread as a comparison. I found that I could recover—well, I will give two or three figures which will indicate—where I had used four and five-tenths parts of peroxide per million on the flour, that I could recover .56.

By the Court:

Q. From what, flour or bread?

A. On the flour, after two days.

Q. After two days?

A. Yes sir; then I baked it into bread, and found out that the bread had of these fifty-six parts, it had forty-four of them. That is, in this particular experiment I recovered 78.6 per cent in the bread, of what I could recover from the flour before I baked it. I followed this along down through, using constantly increasing quantities of peroxide, respectively 9, 18, 36, and so on up to 180, as before, and I find that where I had used very large quantities, strange to relate, of the peroxide I recovered smaller percentages in the bread; so that in the higher quantities, where I used 180, I recovered only and I found 22 in my flour—no, I found 26 in my flour, excuse me, I got baked .22 in my bread, or only about .3 per cent.

By Mr. Smith:

Q. Is that 26.?

A. The exact figure is 26.4, whole number—26.4, and I recovered .3 per cent of that, or 22 parts, .22.

By Judge Scarritt:

Q. .3 of 1 per cent? A. .3 of 1 per cent, yes, sir.

Q. Now, that was on patent flour.

By Mr. Butler:

Q. Now, before you go on, let me see if I understand the things you are talking about. Take the first set of figures you gave us. A. Yes, sir.

Q. The four and one-half parts per million of nitrogen peroxide. A. Yes.

Q. That was the amount of this gas which is contained in the bottle Exhibit 6, only very diluted, being four and one-half parts to the million? A. Of flour.

Q. Of flour, was used to bleach the flour. Then you recovered .56, a little more than a half of one part, per million, of flour, from the flour?

A. From the flour itself.

Q. Now, what was it you recovered, is that the gas—N O 2 or nitrogen?

A. This is all computed to N O 2 of peroxide.

Q. So that these figures are all expressive of the same thing?

A. Expressive of the same thing and the bread is reduced to the same water contents as the flour.

Q. Go on.

A. Now, in the straight flour I used eighteen parts of peroxide per million, and I could find in the flour 1.98 part. I recovered in the bread .33 parts or 16.7 per cent. Now again I will give two more. Where I found 7.92 parts in my flour, I only got back .33 parts in my bread, or I recovered 4.2. Now, in the next case where I could find 9.90 parts in my flour I did not recover any in my bread at all. So that I have reached this conclusion, that the amount recoverable in the bread is going to depend on several factors. Bread can be so made by using large quantities of yeast and other expansion and allowing the yeast germs, and so forth, an opportunity to consume this material that we put into the flour, that very little of it might be recovered; but I want to say this, that that is not the way that bread is made in our ordinary households at all, the way the ordinary housewife bakes it, if there is any appreciable amount of peroxide to be recovered in the flour, a goodly percentage of it will be recovered in the bread.

Q. What is the reason for a decreasing percentage, as you increase the amount of gas used, in large amounts like 180 parts per million, of gas, to the flour, in the patent flour, you only get three-tenths of one per cent of that added?

A. Yes, sir.

Q. Whereas, when you use four and a half parts only per million, you get 76 per cent of that added?

A. Yes, the explanation of that, according to my understanding, is as follows: Where I have used such large quantities I have overtaxed the absorptive power of the 182 flour, and it is not able to hold it so well as I did where

I put in smaller quantities. Now, then, when I come to reduce it to percentages, while the amount that I actually found in the bread was about as much as it was where I used the smaller quantities of peroxide, when I came to reduce it to percentages, why, I have got such a tremendously high divisor that the percentage sinks very small.

Q. Well, the precise figures that you give us at four and a half you found forty-four parts being nitrates? A. Yes.

Q. At 180 you found twenty-two parts? A. Yes, sir.

Q. In the first instance 76 per cent of all that could be found in the flour, in the second instance only .3 of 1 per cent of all you found?

A. So it is not so much the absolute amount that I found in the bread, you see there was not such a tremendous decrease, the amount of decrease ran from—well, I got 88 parts down to 22 parts,—that is rather the extreme decrease, but

when I come to reduce it to percentages, well, I divide 44 in one case, 44 or .56 to get my 78.6; here I am dividing my 22 by the whole number 26.4, a high figure, you see, and it makes the percentage low.

Q. Did you use yeast in making this bread? A. I did.

Q. Now, you testified this forenoon that nitrogen peroxide employed by the Alsop process for the bleaching of flour damaged the gluten of the flour, as I understood it, or injured it?

A. Yes, sir; I believe it does.

Q. Now, the gluten of the flour is usually about what proportion of the flour, what per cent?

A. That depends, of course, on the variety of wheat, but I would give as the average figure 11 or 12 per cent; I have known it to run as high as 14 or 15, but I should judge around 11 or 12 per cent of the flour is gluten.

Q. And is the gluten a portion that is valuable as food?

A. Oh, that is the most valuable part of the flour.

Q. It has the greatest nutritive value; it has the greatest nutritive value, I understand?

A. I would not hardly like to express it that way, Mr. 183 Butler. The gluten or the protein foods are the scarcest and the highest priced articles of food which we buy, as exhibited in the lean meat and eggs and so on; it is more expensive than potatoes, which are all starch, that we want to understand; and the reason for that is because it takes gluten to build up the muscle tissues and bones, and repair that waste, and so as a tissue builder it is the most—it is the most valuable, but still those other things have value also; so we must have our heat and energy. If we didn't have enough to keep up our heat and energy, why—

Q. I intended to make my comparison between the gluten in the flour and the other ingredients of the flour?

A. Yes, sir, the gluten is more valuable than any other ingredient of the flour. We can replace the starch of the flour by using a potato if we want to, but we cannot—

Q. Will you give us the result of your study with respect to the amount of damage to the gluten of the flour resulting from the use of various amounts of this nitrogen peroxide gas employed by the Alsop process?

A. Yes sir. I took the same flours and some unbleached and some bleached. I determined the total nitrogen, as we put it, which is an index, amounts practically to the same thing as the gluten or albumin, only we multiply the nitrogen by 6.25, to reduce it to albumin, so I have given the nitrogen only, and I will speak of this as total nitrogen and albumin nitrogen and amido nitrogen. Now, I think I ought to make a little explanation to the court and jury as to what I mean by these different expressions. I presume they would not be quite familiar with

them. This protein that we have been talking about, or gluten, now, there are three or four names that apply to it, depending on how you are thinking of it. Sometimes we call it albumin, sometimes call it gluten, sometimes call it protein. The words mean about the same thing for practical purposes, in this trial they will mean the same thing. Well, now, then, this gluten or albumin or protein, is distinguished from all other food stuffs because it has nitrogen in it; the others do not have nitrogen; that is, the starch has no nitrogen,—so I have got the expression total nitrogen, that means all the nitrogen I could get out of the flour. Then I have got the albuminoid nitrogen, that means a good, digestible gluten,—that is the part which is digestible, so the albumin is part again, I have got the term amid-nitrogen; now, that is something that we use continually in agricultural chemistry and feeders of stock the world over, and it is generally accepted that this amid-nitrogen is not digestible; it is no good; it goes through and is voided in the manure, and so when we are valuing a stock fool or a food for a human being we depend on our albuminoid nitrogen. Now, then with that explanation I will try and tell you in my unbleached flour,—but first of all I will say that by treatment I did not change my total nitrogen as determined by many careful duplicate determinations; and I would call your attention to the fact also that we are making thousands and thousands of these determinations every year. I have been to work at it now for five years making these, and they have been made with all the care and skill that modern apparatus and human ingenuity could devise, because I wanted results, and I wanted them just right. Now, the total nitrogen was 2.16 all the way through. Our albuminoid nitrogen in the unbleached flour was 2.06. Where I used nine parts per million, it fell to two.

Q. The albumin fell to two?

A. The albuminoid nitrogen fell to two; and where I used 180 parts it fell to 1.97.

Mr. Elliott: Your, Honor, for the purpose of an objection I would like to ask this witness how was this flour bleached that you are talking about?

A. I bleached it myself.

Q. With what? A. With nitrogen peroxide.

Q. Did you bleach it with the Alsop machine?

A. Not with the Alsop machine.

Q. I will ask you if you have analyzed the gas of the Alsop machine, and if you know the proportion of peroxide in

185 it to add? A. No, I have not.

Mr. Elliott: Then I object, Your Honor, to this testimony because it is not the process that was used by the claimant in bleaching his flour, and it is not germane to any—I mean any effects that Professor Shepherd got bleaching in his laboratory with pure gas, is not germane to what the Lexington Mill did, using the Alsop process.

Witness: Mr. Elliott, just one word of explanation.

The Court: Just wait a minute. Objection is overruled and the claimant excepts.

Witness: I would like to state to the gentlemen of the jury that I of course used a mixture of air in nitrogen peroxide.

Judge Scarritt: Let him state the fact.

The Court: Yes, state the fact, Doctor.

By Mr. Butler:

Q. Let me ask you a question, in view of the assertion made by Mr. Elliott, which I have no doubt is all true, but I did not understand in that way. You stated that you employed pure nitrogen peroxide to bleach the flour; I understood you to say that there was only nine parts of that per million?

A. Of flour.

Q. And was all diluted with the atmosphere?

A. Oh, many, many times; I only used four or five cubic centimeters of the pure nitrogen; I had four liters of air.

Q. That would be in percentages what?

A. Was very much—was very, very much diluted; it would compare well with the Alsop. I want to be fair about it; I made it to compare as near as I could with what takes place in the Alsop machine.

Now, if you will allow me to return once more, I will say, now, that in the unbleached flour I found 2.06 of albuminoid nitrogen, and that fell to 1.97 where I used 180 parts.

By the Court:

Q. Per million?

A. Parts per million—no, this is percentage, excuse me, percentages. Then what happened, we see there is a constant diminution then of the albuminoid nitrogen.

186 Now then, in the amid-nitrogen, the amid-nitrogenous compound of the flour, I found in the unbleached flour .10 of 1 per cent, .10; and then in the next one where I used nine parts per million it rose to 16; where I used 36, it rose to 19; where I used 180, it rose no higher; so I had an increase of from 10 parts to 19—understand that this is dealing in one hundredths of per cent, but it is a remarkable thing, that with

these minute quantities that my experiments all went the same way; they all went the same way, and it shows what is going on.

Judge Scarritt: We object to this argument, if Your Honor please. Let the gentleman confine himself to the facts and we'll get along faster.

By Mr. Butler:

Q. Let me ask you a question. Now, you have given us three instances, bleached flour, nine parts nitrogen peroxide per million of flour. A. Yes.

Q. And 180 parts nitrogen peroxide per million of flour?

A. Yes, sir.

Q. And in each instance of the bleached flour the albuminoid nitrogen decreases and the amid-nitrogen increases?

A. Yes, sir.

Q. I want to ask you whether you used any other instances with different amounts of nitrogen?

A. Oh, yes.

Q. Now, suppose in this matter that you give each step, the whole series of experiments, to see whether or not the albuminoid—digestible nitrogen, decreases, and whether the amido, undigestible nitrogen, increases as bleaching is intensified?

A. With no peroxide the albuminoid nitrogen was 2.60. With nine parts per million it was 2.00. With 36 parts per million it was 1.97. With 180 parts per million it was 1.97, just the same.

Q. And now the amido.

A. With the unbleached flour the amido nitrogen was .10 of 1 per cent. With nine parts flour .16 of 1 per cent. With 26 parts it was .19 of 1 per cent. With 180 it was .19 of 1 per cent. This was on the patent flour. I have figured also on the straight flour.

Q. I would like to have those?

A. On the straight flour, unbleached, the aluminoid nitrogen is 2.13. With 36 parts per million peroxide it is 2.12. With 187 72 parts per million it is 2.12, and with the 180 parts per million it is 2.10.

Q. The amido-nitrogen?

A. Now, the amido-nitrogen is unbleached .07. 36 parts .08. With 72 parts it is .08, and with 180 parts it is .10 of 1 per cent.

Q. You told us that in your opinion the bleaching of flour by natural peroxide gas, according to the Alsop process such as was used in this flour seized in this case, impaired the di-

gestibility—I don't now remember whether you said digestibility of the flour or of the bread—what is the fact in that regard.

A. Why, the digestibility of the bread made from the flour is impaired.

Q. Is the digestibility of the flour also itself impaired, or have you made any experiment on that?

A. I have made no experiments on that because a man does not usually eat raw flour.

Q. Now, I wish you would explain to the court and jury how the digestibility of bread, for example, or of any substance, may be arrived at by fermentation, artificial digestibility—I suppose that is not very clear to ordinary men not familiar with work in chemical laboratories.

A. Well, in the experiments which I made on the bread, it had reference to this same gluten or protein or albuminous substances, and that digestion is all carried on in a man's stomach, that is, nearly all of it, part of it, of course, is finished in the lower intestine, and we know the composition of the gastric juice that is in the stomach; we know just exactly how it is made; so we prepared a solution of gastric juice that is identical with that of a man's stomach with the same pepsin in it, and the same hydrochloric acid contents: Then we take samples of bread that are made from unbleached flour, or from bleached flour, or anything that we want to test, and, as a matter of fact, I placed absolutely equal samples in a tube that I made. I took a test tube and cut the bottom of it off, a tube about eight inches long and about three-quarters of an inch in diameter, and I put a very fine muslin strainer over one end;

then I dropped my bread right down into that, and then
188 I could shove the tube, you see, down into my artificial gastric juice. Now, I knew just exactly how much material I had before I began my digestion; and when I had allowed this digestion to go on for a certain length of time, I could raise my tubes out, wash off the adhering digestive solution and stop it. Then I determined how much was left. It is a very simple process.

Q. Now, you may give us the results of your determinations.

A. First, of course, I used my unbleached flour as a standard, and I determined the nitrogen again, as being an indication, because that is the usual way we do, and I found where I had used no peroxide that it left in my tube, after my digestion was over, 1.55 per cent of nitrogen.

By Mr. Elliott:

Q. For the purpose of a possible objection I would like to ask the witness a question or two. What flour did you use in conducting this experiment?

A. With this particular one that I am reciting, it was a first patent flour made from Dakota No. 1 Northern.

Q. Take different parts of that same flour bleached and unbleached?

A. I did, yes.

Q. How did you bleach it?

A. I bleached it in my laboratory, as I have explained.

Mr. Elliott: Counsel for claimant objects to the introduction of this testimony as not germane to the issue in this case, and as having no bearing whatever upon any possible effect the use of the Alsop process might have on flour treated by it.

The Court: Objection is overruled and claimant excepts.

A. I found undigested in the unbleached flour 1.55 of nitrogen. Then where I used 18 parts per million of peroxide I found 1.53 parts. Where I used 36 parts per million on the flour I found in the bread undigested 1.58; and where I used 72 parts per million I found 1.59.

By Mr. Elliott:

Q. What is the last number?

A. 1.59, I think it is, it is a little bit obscure; I won't be quite positive of it, I am sure there is a mistake in this table, it is 1.59, or something of that sort—1.59. But I have figured over the loss in digestibility as compared between the unbleached bread and that that has been bleached. In the first case where I used 18 parts per million I had a gain of 7 per cent in digestibility, that went that way, that is, 7 per cent more of it digested, than it did where I didn't have it bleached at all. In the next case there was a loss of digestibility of 3 per cent. In the next case there was a loss of 14 per cent. Now, proceeding in the same way with this straight flour I obtained losses in digestibility respectively, 18 per cent, and 5 per cent and 20 per cent, as against the same flour unbleached and baked into bread. These losses are small but they prove the contention that the—

Judge Scarritt: I object to his statement. That is argument for lawyers to make.

Mr. Butler: It is very customary, I think, for chemists after experimentation, to express the view whether it establishes a conclusion or not.

Judge Scarritt: We object to that.

Q. Mr. Shephard, I want you to express an opinion upon this question: Does or does not the amount of nitrite reacting material recoverable from the flour measure exactly or correctly the amount of injury done by bleaching.

Mr. Elliott: Your Honor, I will object to the question unless it is properly limited to the Alsop process.

Q. I mean by the Alsop process such as is admitted was used with respect to the flour seized in this case and referred to in the pleadings and defined by the testimony already in.

Mr. Elliott: I simply mean that I think the witness ought to distinguish in his answer between his laboratory bleaching and bleaching by this process.

Mr. Butler: Well, I will ask a question about that, some objection has been suggested, I withdraw this.

Judge Scarritt: And ask another in view of Mr. Elliott's objection?

Q. Some question has arisen by reason of Mr. Elliott's objection here, whether or not like results are produced
190 from bleaching by nitrogen peroxide employed as you employed it in your laboratory, or as employed by the Alsop process which you have described. I will ask you whether or not there is any difference in the effect in the flour?

A. No, the results are identical.

Q. Now, I will renew my question, whether or not the amount of nitrite reacting material recoverable from flour is a true exact index of the amount of damage done by the bleaching by the Alsop process?

Judge Scarritt: We object to that as not being a proper expert question, invading the province of the jury. To ask him what effect each one of these processes has, it seems to me would be proper, but for him to conclude and decide just exactly what the jury has got to decide, is improper and invading the province of the jury.

Mr. Butler: I am sure from Judge Scarritt's objection that I have not made my meaning perfectly plain in the question.

Judge Scarritt: Possibly not.

Mr. Butler: My point is this—

Judge Scarritt: I thought you were going to ask another question, I thought you were; I would like to have a ruling on that as it stands now unless he withdraws it and asks another one.

Mr. Butler: You didn't understand it the way I intended it, and I am sure it is the fault of my question, and perhaps I had better try again.

The Court: That question is stricken out from the record. Put it again.

Q. I received the impression from your testimony this morning that nitrites are recoverable from bleached flour, and that the amount recoverable varies under varying conditions and the lapse of time. Now, given a specimen of flour which has been bleached, which is found in the market without knowledge of its history, the amount of nitrogen peroxide used, the time of using it, with respect to the time of
191 examination, then I ask you whether or not analyzed at that time and the recovery of nitrite reacting material will be a true index of the amount of damage inflicted by the bleaching? That is what I was trying to get at.

Judge Scarritt: That is calling for an opinion—expert conclusion. It is a matter for the jury to decide; he can tell what effect it would have at that time, but how much damage was done is purely a question for the jury; that is the very proposition that they are here to decide.

By Mr. Butler:

Q. I did not mean damage in the sense of dollars and cents, but I mean injury.

Judge Scarritt: The question of adulteration is before this jury; that involves the decision of that question; the answer to that question involves the decision.

The Court: Objection is overruled and claimant excepts.

Witness: The amount recoverable under such circumstances would be no index to the amount of peroxide employed.

Mr. Elliott: I object to the answer as not responsive to the question, and move to strike it out.

Mr. Butler: Well, I will ask another question to cover that.

The Court: I understood he was going to ask another question.

Mr. Smith: That leaves that one in the record. Our motion to strike out has not been passed on by Your Honor, and he has not withdrawn his question.

The Court: It will be stricken out.

By Mr. Butler:

Q. My question was to the extent of damage, and not the amount of nitrogen peroxide gas used.

A. I apologize, I had another thing in mind. My answer to that is that it is no index to the amount of damage done to the flour.

Q. How about the question whether or not it is an index to the amount of nitrogen peroxide gas used?

A. Not under those circumstances, a man couldn't tell anything about it.

Q. Have you determined whether or not nitrite reacting material which was added to flour by the Alsop process is or is not all soluble in water?

A. I have not determined that one point strictly as that, but I have determined that it is not all recoverable by solution in water, we cannot recover the theoretical amount.

Q. That is what I mean. Have you ever made any study or examination to determine the effect upon wheat of nitrogen peroxide gas from the enzyme in the wheat, or enzymotic action or diastase? A. Not on the diastase of wheat.

Q. Or the flour?

A. I have on the diastase of barley, not of wheat or flour, not of wheat.

Q. Well, from your study have you an opinion with respect to that as concerns wheat; that is, would your determinations in barley be enlightening as to the enzyme as respects wheat?

A. Why, there is practically no difference between the two diastases, barley and wheat.

Q. Explain that to the jury, explain what is meant by diastase.

A. The diastase of the grain is what I told you was that enzyme that will change the starch into sugar so that when the plant sprouts it can eat up the starch, consume the starch that is in the berry.

Q. Now, what is the effect of gas on the diastase of wheat?

Counsel for claimant object because no proper foundation having been laid and the witness not showing himself competent to testify. The court overruled the objection; to which ruling claimant then and there duly excepted.

A. I found that where I used 80 parts per million of nitrogen peroxide that it prevented the diastase from acting, I could not get any digestion at all. Where I used 40 parts of peroxide per million, that there was a delay in the action of the diastase as compared with one where no peroxide was used, of 121 per cent.

Q. That is, as I understand it, 80 parts per million of this gas, nitrogen peroxide gas, inhibited digestion?

A. 80 parts per million, yes, sir.

Q. And that 40 parts per million increases the time 120 per cent, is that it? A. 121.

Q. It would all digest, but it takes more than twice as much time, is that the idea? A. Yes, sir.

Q. 121 per cent? A. Yes, sir.

Q. The amount of nitrogen peroxide gas employed in those divers cases in your determination was 80 parts per million, 80 per cent of nitrogen peroxide gas to a million parts of what?

A. A million parts of solution; that indicates the concentration, the strength of it. That would mean just the same as when we say of the flour that we had 80 parts of the peroxide to a million of flour.

Q. Parts of flour? A. Yes sir.

Q. That is what I was trying to get at, whether or not the relation in quantity which was used was the same in terms as in case of bleaching flour. What would be the standard, it has been suggested to me, between 80 parts nitrogen peroxide per million of this solution to the amount of nitrogen involved?

A. I hardly think I understand your table; that is, you mean nitrogen regained as nitrite nitrogen, is that what you want to know?

Q. I don't know, the chemist asked me to ask the question, I don't know what he is talking about, I am not sure—nitrite nitrogen, that is what he wanted.

A. The exact divisor we would have to divide the 80 in the 40, the exact divisor would [—] [46/14th]—about 3.4—well, for practical purposes we might divide say, by four, that would give it 20 parts, 20 parts of nitrite nitrogen in case of 80, yes, and 10 parts of nitrite nitrogen in case of the 40.

Q. Are you familiar with the market prices or the relation between the market prices of patent flour and straight flour and clear, so as to be able to tell us whether or not one is higher than the other?

A. The patent flour commands a premium over clear flour, varying sometimes, sometimes as much as seventy-five cents a barrel.

Q. And that is over clear flour? A. That is over clear.

Q. How about straight?

194 A. Well, it varies again, sometimes 20 and sometimes 30 cents a barrel more.

Q. That is, the highest price, then, is patent, and the next is straight and the next is clear, am I right about that?

A. Yes.

Q. Now, as to the effect upon the general appearance and the effect of bleaching by the Alsop process upon the general appearance of straight flour, does it or does it not make it look to ordinary observation, like a patent flour, especially as respects color?

A. Yes, sir, the straight flour can be made to resemble pat-

ent by bleaching, and, in fact, the bleaching wipes out all distinctions of grade as determined by color.

Mr. Elliott: I object to the last part of the witness' answer, it is purely volunteer, and move to strike it out.

The court overruled the motion to strike out; to which ruling claimant then and there duly excepted.

Q. In the absence of bleaching is the color of wheat flour an index to its quality and kind?

A. It was before bleaching was introduced an index of the quality and kind of flour.

Q. What effect does the Alsop bleaching process have upon color as an index of the kind and quality and value?

A. Destroys the index.

Q. How so?

A. Because it makes all grades of the same color.

Q. And how with respect to flour as you consider different kinds of wheat, new or old wheat, hard and soft?

A. Well, they can all be reduced to uniform color.

The Court: Speak up, Doctor.

A. They can all be reduced to a uniform color.

Q. By this Alsop bleaching process? A. Yes, sir.

Q. This morning you expressed the opinion that bleached flour, when bleached by this Alsop process, would not improve by being stored and by lapse of time as would the unbleached flour. Will you give us the reasons for that opinion, tell us why that is true?

A. On account of the injurious effect on the diastase or the enzymes of the wheat. Of course I could conceive a case where the flour might be bleached to such a slight extent that there wasn't enough peroxide to paralyze all of the enzymes, but usually there is sufficient for that, and if the enzymes are put out of business, why, there cannot be any improvement.

Q. The improvement, then, in case of color, aging, is due to enzymotic action? A. I think it is.

The Court: Anything further, Mr. Butler, in chief?

Mr. Butler: That is all I can think of, Your Honor.

Cross-Examination

By Mr. Elliott.

Q. Professor Shepard, I will ask you first what particular line you qualify as an expert to testify in this case?

A. Why, I have qualified as an agricultural chemist to do digestion work.

Q. Solely as an agricultural chemist?

A. That involves, of course, the idea of this digestion work as I have explained.

Q. You don't qualify as a toxicologist, or doctor of medicine, or anything of that kind? A. Not at all.

Q. I will ask you if for the purpose of your experiments you have ever gone to a mill and gotten flour bleached by the Alsop process, and the same flour unbleached?

A. I have not.

Q. In regard to this Exhibit No. 6 I will ask you if you know how the color of the gas that was originally in there compares with the color of the gas that comes from the Alsop process or the Alsop machine?

A. The colors would be identical if the dilution were the same.

Q. Just repeat the question. (Question read by the reporter.)

A. I will try the answer again. The color of the gas which I brought in is darker than it would be as it issues from the generator of the Alsop machine.

Q. Did you ever see gas coming from the Alsop machine?

A. I have.

Q. Have you ever seen its color? A. I have.

Q. You detected it?

A. I could detect the color and I could detect the—

196 Q. You say that you have seen the color of gas coming from the Alsop machine? A. Yes, sir.

Q. What color was it?

A. It is a very faint, a very faint shade of this same brown color.

Q. Where was that?

A. That was in the mill at Minneapolis.

Q. What mill?

A. In the Washburn-Dean mill and also in the mill at Brookings.

By the Court:

Q. Dakota? A. Dakota, yes, sir.

By Mr. Elliott:

Q. Now, you have testified that peroxide of nitrogen gas produces—has certain properties, that is corrosive and that is difficult to breathe, suffocating to breathe, and so forth. Have you ever smelled the gas from the Alsop machine?

A. I have.

Q. Did you experience any suffocating effects?

A. Why, an irritating effect in that dilution.

Q. You did? A. Yes, sir.

Q. You don't understand, however, do you, that the buyers

of flour that has been bleached by the Alsop process have to inhale this peroxide gas, do you?

A. No, not at all.

Q. And your testimony has been that assuming that the peroxide gas is the element which bleaches flour, that it is changed in the flour to something else, isn't it?

A. With the lapse of time.

Q. Then if it be the fact that peroxide of nitrogen gas is poisonous, that has no necessary bearing, has it, on the property of any compound that may be found in the flour bleached by the gas, has it?

A. Why, in that the nitrous acid derived from it is there.

Q. But that assumes that nitrous acid is poisonous, but I say the fact that the gas is poisonous does not necessarily imply that the product you found in flour is poisonous, if it is changed, doesn't it?

A. But it is not always changed; perhaps, we do not understand each other exactly.

Q. Well, I will ask it plain. A. I make this statement—

Q. Let me put the question to you. You have testified
197 that the peroxide gas comes into the flour and is changed into nitrous and nitric acid? A. Yes, sir.

Q. Those are both distinct chemical substances from peroxide of nitrogen? A. Yes, sir.

Q. Now, irrespective of whether either of those substances are poisonous, I will ask you isn't it a fact, or is it, I will ask you if the fact that peroxide of nitrogen is poisonous necessarily implies that the products it forms in flour is poisonous, if it is changed? A. Why, it does not imply that.

Q. Now, that is all I want to know. You have said that those things were poisonous? A. Yes, sir; I claim—

Q. But what I am getting at—

Mr. Butler: You interrupted the witness and I hope that he may be permitted to conclude his answer.

The Court: It is for the witness to say whether he has answered it completely or not, I don't know.

By Mr. Elliott:

Q. What I am trying to merely bring out is this, Professor Shepard. You have stated that certain properties are possessed of peroxide of nitrogen gas? A. Yes.

Q. And I am simply saying that whatever these properties may be, it does not necessarily follow that they are possessed by the different compounds in the flour, does it?

A. Theoretically it does not, but as a matter of fact, it does follow, Mr. Elliott.

Q. All right. We'll get to that later.

A. Yes, all right.

Q. But as a mere question of theory it does not follow at all, does it? A. Not at all.

Q. In other words, to illustrate, chlorine is a poisonous and corrosive gas, isn't it? A. Yes, sir.

Q. It does not necessarily follow that table salt is poisonous, does it? A. Not at all.

Q. And that is a compound?

A. That is a compound of chlorine.

Q. From chlorine gas, isn't it? A. Yes, sir.

Q. And carboric acid gas is poisonous when inhaled, isn't it? A. Yes, sir.

Q. It does not necessarily follow that the compounds of that gas are poisonous, does it? A. Not at all.

198 Q. As a matter of fact they are not poisonous?

A. No, I have admitted all that, Mr. Elliott; I have admitted that theoretically it does not follow, and you name cases where it does not, to prove my answer correct.

Q. Now, you have testified about this gas generated by the Alsop machine corroding the pipes. Where did you see that?

A. Well, I have seen that in specimens of pipe that have been taken from the mills.

Q. Who got the specimens?

A. Well, I saw those in North Dakota; I couldn't tell you just who brought those in; and I have seen pipes that came out of our mill at home that were corroded, and so on.

Q. Well, did you get those pipes out of the mill?

A. Oh, not at all, it was just casual.

Q. Have you seen a pipe in a mill that was corroded?

A. Sir?

Q. Have you seen any pipe in a mill employing the Alsop process that was corroded?

A. That is you mean where I went and took the pipe out and handled it, and all that?

Q. Did you see the pipe and see that it was corroded?

A. Well, I couldn't see where I have visited the mills, the pipes were in use, you couldn't see because the corrosion is on the inside; there is only [—] way,—to take the pipe out and examine it.

Q. You never did that? A. That I did not do, no, sir.

Q. As a matter of fact, if you pass ordinary atmospheric air through that pipe it would corrode it, wouldn't it, in time?

A. Well, it would be too long for you and me to wait, Mr. Elliott.

Q. You don't know how long it takes this Alsop process gas to corrode it, do you?

A. Why, I have not taken a pipe and put it in and fol-

lowed it through, but of course I am obliged to rely for my knowledge of that on the statements of those who use them.

Q. It is not in evidence here, I am asking you if you know how long a pipe may be used with the Alsop machine without corroding?

A. Well, it will depend on the thickness of that pipe; you can make a pipe thin enough so that it won't last a
199 month with the Alsop process.

Q. You don't know that, though, do you, you have never seen it?

A. Why, I have not made that measurement, no, but I know it.

Q. You don't know how long a pipe may be used with the Alsop machine without corroding, do you; you don't know if it may be used five years or ten years, or twenty years, do you?

A. Well, I know that it cannot be used any such length of time.

Q. Well, how do you know it?

A. I know it because I know the action of chemicals on iron and on the different metals.

Q. Yes, sir, you know what the action of gas on iron is, don't you? A. Yes, sir.

Q. There is pressure in the air? A. Yes, sir.

Q. And that would corrode the pipe too, wouldn't it?

A. Yes.

Q. You don't know how long a pipe would last under mere atmospheric conditions, do you?

A. No, I don't know how long a pipe would last under atmosphere.

Q. You don't know how long a pipe would last from this Alsop machine, do you?

A. I find it does not last but a little while.

Q. Well, how do you know it?

A. Well, because, as I have explained to you, from the samples that I have seen taken out of a mill.

Q. But you don't know anything about those samples. I am asking you for your information, how do you know?

A. Why, I told you a moment ago, Mr. Elliott, that I never went into a mill and put in a pipe and then examine it, and by and by went and took it out or removed it when it was corroded and destroyed. Now, I have admitted all that.

Q. Then you don't know; that is fair, isn't it? Now, you have seen an ordinary rain spout that has been corroded and rusted and full of holes, haven't you? A. Yes, sir.

Q. And it is perfectly evident that iron pipe will corrode by passing air, or air with moisture in it, through them, wouldn't it?

Q. Yes, with air moisture they will corrode.

Q. Have you ever found any nitric acid in flour bleached by the Alsop process.

A. I never made a test for nitric acid.

200 Q. And you never found any nitric acid in flour?

A. No, sir; I never found any in there.

Q. And it would inevitably follow that if there was nitric acid imparted to the flour by this process, that the acidity of the flour would be materially increased?

A. It would depend on the nitric acid; if it went in combination with the gluten of the flour, the acid could not be increased at all because it would form a chemical substance, but if you put in enough acid so that you have passed beyond the compounding contents you will increase your acid right away.

Q. You testified, did you not, that the probabilities were all against a combination of nitric acid and nitrous acid, that any passed in the flour, don't you?

A. No, sir, I did not.

Q. You did not? A. No, sir, I did not.

Q. Didn't you say—

A. Excuse me, I tell you what I said.

Q. Let me ask the question. I understood you to say in answer to a question from Mr. Butler in explaining the disappearance of the substance from the flour, that combinations might account for the disappearance of some of those nitrites, but that in your judgment the probabilities were against combination. Now, is that correct?

A. Now, we were talking,—now, let's understand each other exactly—we were talking at that time about nitrous acid, or nitrite reacting material, and my recollection is that Mr. Butler asked me what became of that, why it constantly disappeared, why we could not recover it after a while; and I made the statement that the probabilities are that this nitrous acid does not go in combination with any of the materials of the flour, to any large extent, perhaps bearing some metallic substances, which I qualified when I came back again, but that this nitrous acid is carried on, this splitting up process regenerating nitrogen peroxide again, and once more losing half of its quantity by half passing into nitric acid and half into nitrous acid.

Q. Well, did you or did you not testify that the probabilities were against the formation, the compounding of nitrous acid that passes in the flour?

201 A. Yes, sir, I said that the probabilities were that there was very little of that going on, yes, sir, that is right; I want to go on record as having said that.

Q. Now, I want to get again, because I think we have a right to know something about this milling process, your idea

of the milling of wheat and the grades of flour that are produced from wheat, such as you gave Mr. Butler; I did not quite make notes of it, and I want to get your idea once more. Now, will you please start with the break rolls and tell me what is produced by the grinding of the wheat.

A. When the wheat goes in the break rolls, as I explained, it is broken into coarse granules, a very large portion of the grinding portions are separate.

Q. The break rolls are corrugated?

A. The break rolls are corrugated, yes, sir.

The Court: Recollect, Professor, that everybody here has a right to hear what you say.

By Mr. Elliott:

Q. Just tell us what the break rolls are, first.

A. The break rolls are corrugated rolls and the first rolls into which the flour is passed here, the whole wheat is broken up, the bran is largely separated, the inner portions, the harder portions of the wheat are made into coarse grains, as I explained, and this is called the middlings, and it is from the middlings that the patent flour is made, made by subsequent reduction on finer break rolls and taken in connection with the smooth rolls, as I explained. There is also a little starchy or a little break flour, a little white flour, produced then on the very first break rolls; that is, according to the custom of the mill, sometimes run into the patent flour. After the patent flour has been extracted by regrinding to bran, and that portion of the middlings which does not go into the patent flour, we get clear flour. After the clear flour is taken out there is something very near like food, that we call "red dog" flour. I further made the statement that where all the flour except the red dog flour is run—all streams united, and all put into one sack, where the total capacity of the wheat is made into one flour, we call that straight flour, that is what I mean by straight flour.

202 Q. Now, when you say all the flour, does that include that red dog, that that goes in to make it straight?

A. I said exclusive of the red dog.

Q. Exclusive of the red dog? A. Yes, sir.

Q. And you speak of the patent flour. Now, where did that come from?

A. I explained a moment ago again that that came from the purified middlings.

Q. Does all of the purified middlings make patent flour?

A. Not all of it, no.

Q. Well, how much?

A. Well, that depends on how the miller is grinding, whether he is making a long patent or a short patent or what he is doing.

Q. Well suppose he is making a long patent.

A. Well, some have used as high as seventy-five per cent of all the flour that they can get as a patent flour, that is 75 per cent of all the flour that can be produced, and call it a patent flour. I think that around about 60, 50, 60, 65 is more near the average, although some from choice patents only have about 55 per cent of all the flour that the wheat can produce; and I will state again, that as a rule after some of the patent flour, after the patent flour is removed from the middlings, that still a quantity of clear can be obtained.

Q. From what?

A. From the middlings, from the remainder which does not all go—the whole middlings does not all go into patent flour, but it is a matter of custom, and each miller grinds according to his own ideas.

Q. Well, that is just the point I want to bring out. You did not mean to say any hard and fast rule, did you, for producing any one of these grades?

A. No hard and fast rules, Mr. Elliott; that was limited by a difference, we will say, of three or four per cent either one way or the other, or four or five per cent; but if a man has such a wide difference that will amount to, for instance, here a 55 per cent makes a good patent flour out of a certain grade of wheat, if that man runs in 80, he has got too near a straight to be a first-class patent, such wide variations as that I would not stand for, but there is no standard.

203 Q. What do you mean by you "would not stand for"?

A. Well, I mean I would not accept it as a patent flour.

Q. Now, irrespective of the question of bleaching, it is a fact, isn't it, that new wheat is ground and new flour is sold?

A. Yes, sir.

Q. That inevitably occurs in the ordinary business of milling? A. Yes, sir, that is true.

Q. I will ask you what is the conditioning of flour, what is the conditioning of flour?

A. The natural conditioning of flour means a storage under proper conditions of temperature and moisture, that is, I mean stored in a dry place, warm place, and allow it to remain there for the natural action of the flour to take place and improve its quality.

Q. Now, take a flour that has been naturally aged and conditioned, I will ask you what changes, are you able to determine, have taken place in that flour as compared with the new flour?

A. Yes, sir, we can determine some of them; I know some of them are well known.

Q. My question was what changes? A. What ones?

Q. Yes. A. Well, one for color.

Q. One is color? A. The color is decreased somewhat.

By Mr. Butler:

Q. I did not get the answer, Mr. Reporter.

A. The color. I say the color has decreased somewhat; that is, it has grown lighter in color. Second, for flavor; the flavor of the flour has improved by the natural aging, the natural conditioning.

By Mr. Elliott:

Q. How do you determine that?

A. That is determined by the aroma of the flour that an expert can get.

Q. What do you compare it with?

A. Compare it with itself, just the same as you compare the odor of a rose with itself; we haven't got any comparative odors now, there are no names for odors, Mr. Elliott, you must remember that the English language does not give us any name for odors; we have to compare, if we undertake to tell about an odor, we have to compare it to something else; you cannot describe the odor of a rose.

Q. No, no, you misunderstood me. You say the odor
204 of the flour has improved? A. Yes.

Q. Now, I mean what flour have you got to compare that with to show the improvement?

A. As against the raw flour.

[A.] How are you going to make the comparison; you cannot keep the raw flour as it was when it was milled, can you?

A. But a man that is in the habit of handling the raw flour will get an idea in his head just as taster of tea, and things of that kind, he can tell those things, and by and by, and if he is in the habit of tasting and comparing these aged flours, he can tell in that way, it is an acquired taste, it is an acquired art, Mr. Elliott, I will admit.

Q. What is that?

A. I say a man can acquire it by practice.

Q. What else now can you detect?

A. The next improvement is an improvement in what we call the quality of the gluten, the quality of the gluten, the elasticity.

Q. How do you make that comparison?

A. Well, that comparison is made, the quality of the gluten is sometimes made by doughing the mixture and pulling it, working it with the fingers to see whether it is sticky or not, or whether it is clean or how resilient it is if you stretch it

out how much will come back, and things of that kind; and then again there is another way that we have of testing in the laboratory is by—

Q. No, I am not speaking about the chemical test, I know that; I mean what flour have you got to compare it with?

A. Well, you must compare it, of course, with the raw flour.

Q. And you haven't got the raw flour to compare it with?

A. Not right there at that time, but Mr. Elliott, if you are in the habit of handling these raw flours and making these tests, and also in the habit of handling the aged flours, a man's dictum is good.

Q. Well, what else can you discover; what other improvement? A. Well, that practically covers it, Mr. Elliott.

Q. Now, chemically you can say that the flour is lighter than—that the naturally aged or conditioned flour is
205 lighter in color that is one thing; and you can also chemically determine that it has less moisture in it,

can't you, that is you can take the moisture contents of the new flour and make a record of it, and six months afterwards, or whatever the time may be, you can take the moisture contents of the naturally aged flour and make a record of it?

A. Yes, but your question implies something that does not always occur, that is what I was thinking about; if your flour is stored away where it can have free access to moisture, that is, if your atmosphere is moist, your old flour may have more moisture than your new, that is.

Q. Under those conditions you say the flour would improve? A. Yes, sir, it would improve.

Q. It would? A. Yes, sir.

Q. If it does contain more moisture than it did when it was new?

A. It was improved in these other respects, but in the respect of having more moisture that would not be an improvement.

Q. No, but I mean absolute, if that new flour at the end of the storing period contained more moisture than the new flour, you say that it would be improved or could be improved?

A. Well, now, we have come to the limitation question again. In that one respect it would not be improved, but in the others it would.

Q. Well, let's get at the absolute facts. Isn't it true that in nearly all cases naturally aged and conditioned flour has less moisture than the new flour?

A. The tendency is that way if it is properly stored.

Q. And those are the only two things which scientifically you can say occur? A. What about the gluten and strength?

Q. You haven't anything to compare that with, but I say

scientifically you can say that the color is lighter, and think it has less moisture. Now the gluten may be improved in quality by the loss of that moisture; may it not; in other words, a loss of the moisture may account for the improvement of the gluten, may it not?

A. I don't think so, sir, no, sir.

Q. Well, why not?

206 A. Why, because when we make that gluten into dough, whereas we only have say about ten per cent of moisture in our flour, we put in enough water there so that our dough will carry thirty or forty per cent of water, and then when we come to expand it, when we come to expand it, why, certainly, the amount of water that was in there is insignificant as compared with the total amount of water almost.

Q. Well, here is what I am trying to get at. We know what you say, and it is admitted that naturally aged flour is improved. Now, I say the only two facts about it that you can scientifically prove is that it is lighter in color and has less moisture. Now, if the gluten is improved you don't know how that occurs, or why it is improved, do you?

A. Why it improves?

Q. Yes, sir. A. I think we do.

Q. Well, tell us.

A. Why, I think like this, I think by the enzymotic action going on that the gluten is modified, and it is rendered more elastic.

Q. Yes, sir, Doctor Shepard, others have different thoughts. I am speaking about what is scientifically known, has anybody—now I ask you this question—has anybody been able to state what occurs when flour conditions, or what makes it improve by age?

A. Well, I have stated to you fairly what I considered, and if you have got others that have different views, I suppose they are welcome to give them here, but I do not care to change my expression or views, Mr. Elliott.

Q. I have not understood that you have stated why, the conditions you have stated, the facts? A. Yes.

Q. And that you think something, but I say can you controvert this proposition that the only two chemical facts or scientific facts that have been ascertained are that the condition of the flour is whiter in color and has less moisture in it. Now, can you controvert that?

A. Oh, well, there have been plenty of experiments made along that line; I have not made those experiments myself, but, Mr. Elliott, every housewife in the United States that has ever been baking flour knows that the baking quality of

that flour is improved and the gluten is improved.

207 Q. I do not dispute it for a minute, but I am asking you, can you controvert this statement that the only two ascertained facts that any man can testify to is that it is lighter in color and has less moisture than the new flour?

A. Well, the improvement of the gluten must remain; I must insist on that.

Q. We assume that it is improved, but I am not asking for the reason of the improvement. Those are the only two facts that are known, are they not?

A. I told you once that we know that the gluten is improved.

Q. And I admit that.

A. Well, then, I don't see what we are talking about, Mr. Elliott, we seem to be agreeing.

Q. Why does the gluten improve?

A. I tried to tell you a moment ago that owing to enzymotic action that it had been improved in its elasticity.

Q. Yes, Professor, perhaps we are beating around the bush. I simply want to show this: We will admit that naturally aged flour is better than a new flour for its baking purposes; let's admit that. A. Yes.

Q. And I say we know that the conditioned flour has less moisture and is lighter in color. And won't you admit that it is better in flavor too? We are admitting an improvement; let's admit it is better in flavor, all right; now, I am just coming to the why, I simply say the only two scientific facts accounting for that improvement, are, one, the loss of color which we can attribute to what we please, and second, the loss of moisture. Now, do you controvert that; if you do we will drop it?

A. I don't agree with you, Mr. Elliott. We cannot agree if we talk all day, but we will have to quit.

Q. Now, do you wish to be understood as testifying that aged flour is always better than new flour?

A. If made from the same grade of wheat, yes.

Q. Any given time in the market can you get new wheat or new flour that may make better bread than old flour that is already on the market?

208 A. Yes, because you might have had some old flour that was so awful bad when it was milled that it never would be improved by aging, and you may get a new flour that was very good indeed, and thus make you better bread.

Q. You admit the possibility?

A. But we will go right back to my statement to you, and that covers it fairly, Mr. Elliott, and that is this, that if the flour is made from the same grade of wheat, the aged flour is always more valuable than the new flour.

Q. Isn't it true that, or do you know this, that oftentimes on the market new flour will bring a higher price than aged flour?

A. It might, because some years we have a bad crop of wheat and the wheat is all bad, and the flour made from that is not desirable; the next year we may have a good crop of wheat, a good quality of wheat.

Q. I don't want to interrupt you, but is it true that new flour may sometimes be lighter in color than the old flour on the market?

A. Under the circumstances that I have just given, that is true, when you have one year a bad crop, and the next year a good one, your bad wheat always shows up to disadvantage, even though it is aged.

Q. What is the color of the flour made from the wheat of South Dakota as compared with the color of the flour made from the wheats of Kansas and Nebraska and Iowa and Missouri?

A. The wheats of the states last mentioned are all darker in color. I am talking of the natural flour, that is what you want to know?

Q. Yes.

A. Without bleaching or anything. They are considerably darker in color, contain quite a few more parts in the orange and also in the yellow.

Q. Now, I understood you to testify that in reference to bleaching that depending upon how it was handled?

A. Now, once more, Mr. Elliott.

Q. Depending on how it was handled?

A. The first part of it, I beg pardon, I didn't catch.

Q. Flour may be chalky white. Now, just explain what you mean by that.

209 A. I mean by that where the tints of orange and yellow have very nearly disappeared; that point can be reached.

Q. What did you mean by "depending on how it is handled"?

A. That is whether—it is whether or not peroxide has been put in to reach that point or not.

Q. Yes. Well, you say chalky white was a desirable color?

A. I didn't say anything of the kind.

Q. I am asking you.

A. No, sir; I say it is an undesirable color.

Q. Is it a very undesirable color?

A. To my notion it is a very undesirable color, yes sir.

Q. And if a miller can bleach his flour so as not to give it a chalky white color, if it is an undesirable color, you see any reason why he should do it?

A. I can't see any reason why he should but as a matter of fact he often does.

Q. All right—

A. And I sympathize with the miller that does it; it is because somebody wants to have white bread.

Q. If you will just confine your answers to my questions, Professor Shepard, we will get along very much faster; I don't think there is very much disagreement between us. A. No.

Q. You say this thing can be handled to give it a chalky color, this process? A. I do.

Q. Which means that you need not give it a chalky color if you get it right. Now then I will ask you if, that being the fact, you could see any reason, why a miller should give his flour an undesirable color?

Mr. Butler: This is improper cross-examination, because wholly irrelevant.

The Court: Objection sustained.

To which ruling of the court claimant excepts.

Q. I understood you to say that by this bleaching process the clear flour may be made lighter in color; is that correct?

A. Yes, sir, that is true.

Q. How does the clear flour differ from the so-called patent flour? A. In what respect differ, in which?

210 Q. In quality? A. In quality?

Q. Yes, what makes it clear?

A. Now that word "quality" is so inclusive, Mr. Elliott, that I hardly know how to answer your question.

Q. Well, take the hypothetical mill you were talking about?

A. Well, in the first place, of course, its color is not quite so good, that is comparing it with the patent, and then again, why, sometimes it might have more protein in it than the patent, and it does not have quite so desirable an appearance as the patent flour; really, the clear flour is not such a bad flour from a nutritious standpoint.

Mr. Butler: Speak a little louder if you can, Professor.

A. I will try.

By Mr. Elliott:

Q. Well, perhaps I misunderstood you, but if that may be equally nutritious or more nutritious than the patent flour, if a man bleached his clear flour and makes it this patent flour he would be making a better flour, wouldn't he, by adding more nutriment to the flour?

A. No, he would be adding a lower grade a lower value of flour to the higher grade of flour just the same.

Q. Now I don't care which way you look at it. Why is it a lower grade then?

A. Because it brings a lower price, it is a foolish thing, there is no reason on earth for it but it is a fact you know.

Q. There is no reason for the fact?

A. No, there is no reason.

Q. In your judgment.

A. Excepting as I explained, that it might not make so desirable a looking loaf in a man's estimate who wants a dry white loaf.

Q. Well, do you mean that it is only inferior to the patent because it is not as white in color?

A. I mean that it is inferior to the patent because it does not bring so good a price, Mr. Elliott.

Q. Oh well, that shows it may be, but I am asking your opinion why you say it is inferior to the patent?

A. Well in that respect it is inferior in that it does not bring so high a price on the market, you could not sell it for as much.

211 Q. Then tell us why you think it does not bring as high a price on the market?

A. Simply because people don't want it.

Q. Then why don't they want it?

Counsel for the Government objected.

A. Well, I declare I don't know why. I can't tell you why nor why the people don't want it; I can't tell you why.

Mr. Butler: I doubt very much that that is proper cross-examination.

Mr. Elliott: Well, I think it is very germane.

The Court: Why does corn meal not bring so much as flour and so forth? I don't believe that is a subject of expert inquiry.

Mr. Elliott: Corn meal is not flour, is not wheat meal.

The Court: No, I learned that a good while ago but that would not get at that. I have just said, how can that be a subject of expert inquiry. Some men prefer corn meal, some rye, and some wheat, and some one thing and another.

Witness: I couldn't tell why.

The Court: Just hold on. That is not a subject of inquiry. I don't think of this witness.

Mr. Elliott: Your Honor, the witness testified—

The Court: Now here these entire inquiries are here within three brief paragraphs of Section 7, to which Mr. Butler directed himself and it is not for the court to even suggest what he has meant by it. The things I am going to submit to this jury are within Paragraphs 1, 4 and 5, under the grand division of Foods, of Section 7, jumping drug and confectionery, and getting down to foods. Of course, you and I know what those three things are. If they bring this within either one of those three paragraphs, the verdict will be so and so; if they do not the verdict will be in your favor. Now then how can it be a subject of inquiry by this gentleman; he says that he has had scientific knowledge, education and experience, how can you cross-examine him with reference to markets, 212 or getting into the field of bulls and bears not into the laboratory, it seems to me like.

Mr. Elliott: Not at all. Do I understand your Honor to say I may not?

The Court: I sustain the objection, yes.

Mr. Elliott: We note an exception to that.

By Mr. Elliott: (resuming)

Q. Assuming that all so called clear flour contained certain impurities, that is branny particles or other impurities, is it your opinion that the bleaching of flour, would conceal or make prominent those impurities in the flour?

A. That is whether it would bring it out? It would emphasize the presence of the branny particles?

Q. Yes, sir.

A. If it was pushed far enough, I believe it would, Mr. Elliott, but I think—my experience in that has been like this, that if it is judiciously done, that that flour can be treated, and then by mixing it, as is often done with that clear flour, with some other grade of flour, the whole thing goes as high patent.

Mr. Elliott: I move to strike it out.

The Court: I believe, Professor, that you ought to focus your mind on the question, and when you answer, why, then wait for the next question.

A. All right.

Mr. Elliott: I move to strike out the answer of the witness, and I will ask it over again.

The Court: I will leave it go, but you may commence again on the subject, it goes out.

Q. Now I will ask you if it is your judgment that if a so called clear flour contains particles and is bleached, if the presence of branny particles would not be more apparent after the bleaching than before?

A. Not unless too much bleaching had been used, Mr. Elliott; by bleaching very carefully it would not emphasize their presence.

Q. Is it your judgment that branny particles are bleached by this process? A. I don't think they are.

Q. Then if this flour we are talking about, the flour content, is made whiter, wouldn't it necessarily follow that the branny particles would be more prominent?

A. Well, theoretically you are right, but practically, as I have explained, if the thing is done carefully, why it is not necessary to emphasize the presence of the branny particles.

Q. I don't understand what you mean by being done carefully, I am assuming that it is bleached, commercially bleached I will say, assuming that the clear flour is bleached at all, doesn't it follow, that the whiter you make the flour the more prominent you make the branny particles of it?

A. Well, that would be true as you state it that way.

Q. I believe you have testified as to the probability or possibility, I don't know which, of nitrites and nitrates being formed in flour by this process? A. Yes.

Q. I will ask you if you have ever obtained or isolated any nitrites or nitrates as such, from any flour that was bleached by the Alsop process? A. Yes, sir, I have.

Q. Tell me when that was and how you did it?

A. That was some flour that was sent into my laboratory during the time that I was doing the pure food work. Prof. Lott sent me several samples—

Q. Well, one moment now. I must object to that answer; you don't know where Prof. Lott or anybody else, got the flour that that was sent to you.

Mr. Butler: Wait a moment, Mr. Elliott, please. This question calls for this answer, as I caught the question and answer, and it seems to me he ought to be permitted to answer the question, or the question ought to be withdrawn.

The Court: Were you through with the answer.

Mr. Elliott: The first question asked this witness was if he had ever taken any flour bleached by the Alsop process and comparing it with the flour unbleached, for the purpose of experiments, and he said he had not. Now I ask him if he has ever procured or isolated from any flour bleached by the Alsop process nitrites or nitrates as such? A. I answer in the affirmative.

Q. Well, where did you get the flour?

A. I got, I remember, one sample in bread that I procured at our mill there in Brookings. I had other samples that were sent to me labeled and marked, and admitted Mr. Elliott, [you] have been bleached by the Alsop process, by you, and by every one else in the North Dakota trial. While my investigations along that line have not been so large as they have where I did it myself, I can say truly that I have isolated a nitrate acid from flour bleached by the Alsop process.

Q. My questions was nitrites?

A. I said nitrites.

Q. I understood you to say nitrous acid?

A. Well, it is all the same thing, that is practically, whether it is nitrogen nitrite or whether it is some other form, why, we are speaking of it all as nitrite reacting material.

Q. Now let me ask you this—don't you know as a chemist that nitrous acid has never been isolated by anybody?

A. Not in a pure state.

Q. All right, then you did not isolate it, did you?

A. You are not using your terms right, are you?

Q. I think so.

A. Now let's understand this now if you are using your terms right.

Q. You answer my question—my terms of nitrite first; did you ever isolate and take out of any flour bleached by the Alsop process any nitrites?

A. I say using the term as extracting, that is, if I ever extracted any of these substances, I reply to that question, yes. Now if you ask me if I isolated it from that, I say, no, or no living man ever has.

Q. Did you ever take out of or procure from or isolate from any flour bleached by the Alsop process any nitrates?

A. I told you that I never had tested those for nitrates, yes, sir.

Q. Then so far as you are concerned the existence of nitrites as such and nitrates as such, in flour, is pure theory, isn't it?

A. Well, I want to think about that question a moment.

215 In the first place—no, it is not pure theory; for instance, I know and I have worked so much that I have extracted a very large quantity, a very large number of samples I have extracted what we have been calling all along this nitrite reacting material, which I believe now to be very nearly pure nitrous acid. Now then, on the other hand, I have made so many, many, many experiments, Mr. Elliott, wherein I have proven that when nitrogen peroxide splits up and goes into water, that nitric and nitrous acids are formed. I know the

nitric acid has gone into that flour, and having gone in there, it is there. It is no theory.

Q. Well, I move to strike out the answer of the witness. I am asking you not about nitrous acid and nitric acid. I am asking you about nitrites and nitrates.

Mr. Butler: The witness—call the court's attention for the purpose of this objection, that the witness has defined his terms, as nitrites being equivalent to nitrous acid.

The Court: I understand the answer, but you may pursue the matter.

Q. Well, a nitrite is a combination of nitrous acid with some base, isn't it, it is all the same?

A. I see now. Now I will answer that question for you, now you have got it on a different basis again.

Q. No I said nitrite? A. Nitrite.

Q. Always said nitrite, I have not asked you anything else.

The Court: Yes, you asked about nitrous acid.

A. Well, all right, I never have isolated any nitrites, now remember, nitrites, that is nitrous acid with a base; further, I testified this morning that I did not believe that existed there.

Q. All right, now then as to nitrates?

A. I told you that I had not extracted any nitrates from the flour, and I have given you my reasons for knowing that they are there.

Q. Now for the purpose of objecting to some of your testimony I ask you about this Alsop gas; I want to ask you one to two more questions on gas produced by the Alsop machine. You have seen an Alsop machine working, have you?

A. Yes, sir.

216 Q. Produce the flaming arch? A. Yes, sir.

Q. And air passes through that gas to the flour?

A. Yes.

Q. You say one of these machines is in the mill in your town? A. Oh, yes.

Q. So you could, at any time, could you not, have obtained flour, bleached or unbleached, by that process from that mill?

A. I could not now, because he has discontinued the use of the machine.

Q. At the time, you did see it I mean?

A. Oh, I could at that time surely.

Q. Had you seen it working other places?

A. Yes, I visited the different mills in Minneapolis, and seen their bleachers working there, that is when they were using them.

Q. You have testified in the case at Fargo, North Dakota, and in the public hearing at Washington, and in the case at London, involving this bleaching process, haven't you?

A. Yes, sir.

The Court: Answer audibly.

A. Yes, sir; yes, sir; I have.

Q. Now I will ask you if you have ever taken gas from this Alsop machine and analyzed it to find what it was?

A. I have not.

Q. I will ask you if you know the strength of the dilution of that gas? A. No, sir, I do not.

Q. As in terms of air with any other substance—Oh, you do not?

A. No, I do not. That depends altogether on the rapidity of the work and brake and insweep of the air, that can be altered.

Q. You never determined that? A. No, sir.

Q. What is the action of the peroxide of nitrogen on protein matter as respects color?

A. As respects color?

Q. Yes, sir.

A. Well, that will depend something on the extent to which it is pushed; if it is pushed far enough we get what we call xantho-protein, or the yellow color reaction.

Q. Then your answer to the question is, it turns protein matter yellow?

A. It can if you use enough of it.

Q. You stated to the jury did you not, that if you put those brakes on your brush it will turn it yellow?

A. Yes, sir.

Q. And what is the action of nitric acid on protein matter?

A. It turns it yellow on protein matter.

Q. And also what other effect may nitric acid have on material with which it comes in contact?

A. Well, it may—depending on its strength and dilution—why, it may hydrolyze starch, for instance, may change it to sugar, or if it is strong enough, it may change the starch to oxalid acid.

Q. And it may burn up things?

A. Yes, sir, perhaps we might put it that way.

Q. Well, you testified to that, didn't you?

A. Why, I will testify to it now, that it can burn up things.

Q. I understood you to testify that when flour has been bleached, that it can not improve any further, I mean bleached artificially is that correct?

A. That is correct, unless, as I explained, there has been such a small amount of bleaching that there was not enough to effect the enzymes of the flour.

Q. What do you mean by a small amount of bleaching?

A. Well, I mean where the absorptive capacity of the flour has not been reached; you know, of course, do you not, Mr. Elliott, that the flour has a certain absorptive capacity for this gas, or for these gases, and for these acids, that it will hold a certain amount, and beyond that it wont hold; if you go to the absorptive capacity by your bleaching gas to that, and it does very often, you wont have any improvement after that, the enzymes are all dead and out of business.

Q. Now you are speaking of any particular flour, or flours in general, some flour that you bleached?

A. I lay it down as a fundamental truth of all flours.

Q. Of all flours? A. Yes, sir.

Q. That is bleached artificially, that it can not improve?

A. Why, didn't I make—

Q. Unless, as you say, what was the clear, very lightly bleached?

A. Yes, has to be to its absorptive capacity.

Q. It might happen, might it not, that what you term "slight bleaching" is what the miller terms commercial bleaching, might it not?

218 A. That is hardly persuasive to me, I think I know what the miller uses.

Q. Perhaps not. How, if you demonstrated, and with what flours that this bleached flour does not improve with age, or can not improve with age, or that some bleached flour can not improve with age, tell me how you demonstrate that?

A. Why, I have done it by flours that I have stored in my own laboratory, I kept them there; I have obtained, say a sample of flour, and left a portion of it unbleached, and I have worked with that flour from time to time, and I bleached a part of the same flour.

Q. Now you are speaking about flour bleached by the Alsop process?

A. No, I am speaking about flour that I bleached myself, Mr. Elliott.

Q. Yes, Professor. Now let me ask you to confine your answer to flour bleached by the Alsop process, this electrical machine? A. Oh.

Q. Do you say that flour bleached commercially by that machine can improve with age?

Mr. Butler: Wait a moment. We object to the question, unless they define what they mean by "commercially", that is a phrase that is unknown to the court and has no meaning.

Mr. Elliott: I mean it as the witness used it.

Mr. Butler: He did not use it except in inquiries to the use of it by you.

Mr. Elliott: Well, if he acquiesced in it, what objection have you got?

Mr. Butler: What do you mean by it.

Witness: I will try it again, Mr. Elliott, let me see, what was your question, let see if I can answer it.

Q. Let me ask you another question now. Can you say from actual demonstration or proof that any flour that you have observed by the Alsop electrical machine, can not improve with age?

A. Now that amounts to just this, that is whether I have stored this in my laboratory, as well as my own, does it not, that is, you must admit that, I couldn't tell that without storing it. I will answer that, no.

219 Q. You answer it, no.

A. I will answer it, no, sure I will.

Q. I knew we would get along rapidly.

Mr. Butler: Tell me what you mean by "commercially".

Mr. Smith: You can ask that question.

Q. Now for the purpose—I believe you testified that flour bleached is less digestible than flour that is unbleached?

A. No, I did not testify—

Q. Or bread made from flour that is bleached is less digestible than bread made from flour that is not bleached?

A. That is correct, Mr. Elliott.

Q. You dealt with the bread?

A. I dealt with the bread.

Q. Now you saw that flour bleached from which that bread was made? A. I bleached it in my own laboratory.

Q. Bleached it in your laboratory? A. Yes sir.

Q. You have not made, as I understand it, then, any digestion experiments with any bread that was treated with this Alsop electrical process? A. No, sir.

Q. Now in the bleaching which you practiced for the purpose of those digestion experiments, I understood you to say that you used from 20 to 40 to 60 parts per million of peroxide of nitrogen in bleaching the flour?

A. Oh, I used a great deal less than that. I gave the range from 4 1/2 to 180 per million.

Q. Yes, you gave it, I think—was it 4 1/2?

A. 4 1/2 to 180.

Q. But I understood you to say that in the flour you made these digestion experiments with, you used from 20 to 40 to 60 parts, may be I am wrong.

A. I will see if you are right, excuse me just a moment. (Consults memorandum). I will give you my ranges now, Mr. Elliott—from 18 parts of peroxide to 72, that was the range, on the patent flour.

Q. 18 to 72? A. Yes, sir.

By Mr. Butler:

Q. Is that 18 parts of the nitrogen peroxide gas employed, or that amount of nitrite reacting material, do you mean?

A. No, that is nitrogen peroxide employed, the actual weight of the nitrogen peroxide employed.

By Mr. Elliott:

Q. Now I want to get the details of this experiment, 220 how much flour did you take and bleach in any one experiment, take one experiment, I don't care which one, take the one you used 18 parts?

A. Oh, we used the same amount of flour.

Q. Well, how much did you use?

A. Well, we usually take about half a kilogram at a time.

Q. How much is half a kilogram—I don't know if these gentlemen—could you give us some idea what it is.

A. Oh, a pound and a quarter, yes, for instance, it would fill your dish up to about here, (indicating), up to about here.

Q. That is a kilogram or half a kilogram?

A. Half a kilogram.

Q. And half of it, the half of it is up here?

A. The half kilogram would be about there I say (indicating).

Q. Well, that is, take that much flour in round numbers.

A. Yes.

By Mr. Butler:

Q. What is that, about a quart or pint and half or what? (Witness indicates).

By Mr. Elliott:

Q. What does a kilogram compare to in the English system?

A. I believe it is two pounds and a quarter, isn't it?

Q. Well, half a kilogram would be about a pint of flour?

A. Well, it would be more than a pint, rather.

Q. A pint and a half?

A. Yes, I used a pint and a half dilution.

Q. A pint and half of flour? A. Yes, sir.

Q. Now I want to know how you bleached that flour, Professor, what was your process?

A. I bleached it by the addition of pure nitrogen peroxide.

Q. And how did you do that, pour it into the vessel containing the flour?

A. The flour was placed in a large vessel, one that had a capacity of Oh, eight or ten times the amount of flour that I put in, so that it wasn't anywheres near full; then by introducing the peroxide, you see a comparatively very small volume, introducing it near the flour, near the bottom, then by shaking it up, then by shaking it up then just a minute or two.

Q. Now you had, as I understand it, 18 parts per million?

A. Yes, sir.

221 Q. Of peroxide of nitrogen? A. Yes.

Q. Tell me how you got that peroxide of nitrogen estimated, how do you weigh it?

A. Well, that was done in this way; in the first place I generated pure nitric acid oxid, pure N. O., and then by taking the reading of the barometer and thermometer, getting both the temperature and the pressure, and by taking the specific gravity, I was able to tell exactly the weight of any volume of my nitrogen peroxide at that time, of my nitric oxid at that time.

Mr. Lyons: Speak louder, Mr. Shepard, can't hear you.

A. Yes, sir. Then this nitric oxid, as a matter of fact, was mixed with sufficient, not more than sufficient atmospheric air in my bleacher itself, so that it first went into peroxide and then as I shook it up, went into—

Q. When you say you used 18 parts per million of nitric —of peroxide, you mean to the million parts of flour?

A. Yes.

Q. By weight?

A. 18 parts of nitrogen peroxide to—

Q. By weight?

A. By weight, to one million parts of flour by weight.

Q. Now then having bleached how long did you expose it, how long did you keep it in there?

A. Oh, shaking it up and down?

Q. Yes, sir.

A. Oh, about three, from three to four minutes.

Q. Did all the peroxide disappear?

A. Yes, the peroxide disappeared, that is the color left the flask.

Q. And what was the color of the resultant flour?

A. Did you want the color table?

Q. I would not understand it, just in terms of white?

A. Oh, it whitened it.

Q. It was white, was it? A. It whitened it.

Q. Whiter than it was before?

A. Whiter than it was before.

Q. Then I suppose you baked that into bread, that flour?

A. Oh, it was removed then from the bleacher and stored and finally baked into bread, yes sir.

222 Q. How much bread did that make, approximately, one loaf?

A. Oh, I didn't use it all. We only take about 300 grams, Oh, it takes about 300 grams to make a loaf of bread, about a pound loaf, and we have certain rules that we follow, so that left me 200 other grams for other purposes.

Q. Well, before you baked it into bread, did you test the flour for nitrites? A. Yes, sir.

Q. How much did it contain?

A. I testified to that, Mr. Elliott. It is on record. Now do you want to confine your question to any specific amount, Mr. Elliott; do you wish to confine your question to any specific amount—18 parts?

Q. The flour you bleached with the 18 parts?

A. All right, sir. Where I used 18 parts of peroxide per million, I was able to find in the flour 1.98 parts per millions.

Q. Is that nitrogen nitrites?

A. That is nitrogen peroxide; I don't use that expression nitrogen as nitrites, it is all nitrogen peroxide, everything.

Q. Just tell me—put it in terms of nitrite nitrogen, would you figure it higher or lower than you have?

A. Oh, it would be very much lower, about four times lower, that is, if I should call that all nitrite nitrogen, which [—] is not by any manner of means, but if we call it an equivalent to it, I would have to divide my 18 by 4.

By Mr. Butler:

Q. Divide the 1.98 by 4?

A. I would have to do better than that, because now, see here, Mr. Elliott, when this peroxide goes into water, half of your nitrogen runs right through, and the next change, half is lost again, so we have only $\frac{1}{4}$ of this, and put in that $\frac{1}{4}$, so that if I should take $\frac{1}{4}$ of 18, that would give me about four, and then if I should better it by the relative amount of nitrogen as compared with nitrogen peroxide, I better it by four; that would make me about one part again of nitrite nitrogen per million that I actually put in, that is the truth.

Mr. Butler: How much taken out?

Q. I am asking for what you found in the flour, not what you put in; what did you find in the flour?

223 A. You could divide the figures there about by 16.

Q. By 16? A. Yes, sir.

By Mr. Butler:

Q. That is 1.98, divided by 16.

A. Yes, that is what it would be; that would go one and in thirty-eight—about 12/100 of nitrite of nitrogen, that I actually found in that flour, and then I found in the bread about two parts of nitrite nitrogen, if you want to figure it.

Q. You took a certain proportion of this flour and made bread from it, did you? A. Yes, sir.

Q. And you took a like proportion of the unbleached flour and made bread from it, I assume? A. Yes, sir.

Q. Now tell us how you performed that digestion experiment, first give us one of them, using this 18 parts?

A. Well, I run them altogether, for instance, these that I have gotten here, that I brought you, I ran them altogether, I ran them in the series.

Q. What artificial digesting substance did you use I mean?

A. I used a solution of pepsin, the active principle of gastric juice, with 2/10 per cent hydrochloric acid solution, that is a very close approximation to the digestive juice of the stomach, and I placed a large quantity of that in a beaker, I had a large beaker, one that would hold about two or three liters, and these weighed quantities of bread.

Q. Now first tell us how much digestive fluid you had?

A. Oh, I had worlds of that.

Q. How much?

A. Worlds of it, more than I needed, probably a couple of liters.

Q. Well, I mean I want a definite experiment with figures now, we have got thus far, and you say you made a digestive solution, and you put these tubes containing the bread in it; I want you to describe it.

A. I tell you, Mr. Elliott, I believe you better let me tell you, how I made that experiment, because I can see from the way that you start to asking questions that you don't know what I did nor you don't know how I made it.

224 Q. I don't, I want you to tell me?

A. All right, I will tell you then, and I will tell you in full. First, I had a large beaker that will hold three or four times as much as this one.

Q. That will be about a gallon? A. Oh no.

Q. Oh, no, half a gallon?

A. Yes, about a couple of quarts; then I filled it like this, we'll say, with the digestive fluid, but it doesn't matter how

much, with this fluid; I might have an opinion of it, if I wanted to, but that does not make any difference, you know. Then I took tubes about the size of this, that is about that round, about, well— $3/4$ of an inch in diameter, and 8 inches long, and I cut the bottoms off the tubes. I tied a fine muslin strainer right over the bottom of the tubes, I grouped those tubes and I put a certain series of these tubes, ten or a dozen of them, these were all run in duplicate, and the figures that I have given here are means, in one single trial, you know, and then you can imagine to yourself a group of these two, bound around with elastic bands, so that they were all the same, the same amount of bread from each sample, of course, was put in, like that. Then this was set right down like this, until the digestive fluid rose two or three inches above the sample of bread that was in there. Now it was kept about 40 degrees centigrade; that is about the temperature of the stomach where the best digestion occurs, and it was left there until the digestion had gone on its way a long time. Now you see what happened. The bread was right down here on your little muslin strainer. As the digestive juices attacked it the solution became heavier; and that heavier solution just filtered and dropped right down into the large vessel out side; so it kept in contact with a fresh amount of solution all the while; and then when the digestion—I did not allow it to go to completion, mind you, if I had, I would not have had anything to inform my self, because my bread would have digested completely—so I had to stop before that was completely digested. Well, as soon as it was completely digested I could just take this all up at one time, so that every one got the same treatment absolutely, the same all the
225 way through, and then by setting this down once or twice in cold water, fresh water, why, we washed the digestive solution all off from them, so that there was nothing left but the undigested residue. Then we found—that is, I determined the nitrogen, although, I presume you would not be interested in that.

Q. Yes, I am very much interested in that? A. Are you?

Q. Yes, sir.

A. You want me to tell you how I got the nitrogen?

Q. No, just tell me how you determined the rate of digestion.

A. Oh yes, I see. Now then it is evident, that if our peroxide is making any difference with that bread with our one sample that didn't have any in, it ought to go a little faster than the other.

Q. Ought to digest faster?

A. Ought to digest faster, and there ought to be less left in that set of tubes.

By the Court:

Q. Less residue?

A. Less residue, yes sir, less residue, and where the others have been affected, there would be residue left according to the amount of disturbance that was brought about by your peroxide. Now then having determined beforehand exactly how much protein I put into each tube, I then analyzed those residues once more, and determined how much protein I had left, and that gave me exact data for comparison.

Q. In other words, you determined the nitrogen compounds of the residue is that it?

A. Yes, and that is the way I determined it.

At this point the further hearing of this cause was adjourned until tomorrow, Friday, June 3, 1910, at 10 o'clock a. m.

226 Kansas City, Missouri, Friday, June 3, 1910.

Court met pursuant to adjournment, and the further hearing of this cause was resumed as follows, to-wit:

Morning Session.

James H. Shepard, in continuation of his Cross-examination further testified as follows:

By Mr. Elliott:

Q. Professor Shepard, I will ask you what you would set as the limit of experimental error in making nitrogen determinations of flour?

A. We consider a determination satisfactory when we get a variation of about one to two-hundredths of one per cent.

Q. Now will you tell me, if using one gram of flour, I think that is what you used, wasn't it, one, in the digestion work—how much was it you used?

A. We usually use one gram.

Q. Is it one gram? A. Yes.

Q. And assuming the flour contained as a result of bleaching two parts per million of nitrite nitrogen, I will ask you if you could possibly determine any loss of what you have referred to as albuminoid nitrogen, and again of amid-nitrogen?

A. Now, just repeat the first part—could I determine—

Q. In other words, would not all of your figures be within the limits of experimental error? A. Clearly so.

Q. I have not your exact figures in mind, but I will ask you if it is not true that the figures you gave yesterday were not within the limits of experimental error?

A. They are within the limits of experimental error.

Q. Now, Professor, I will ask you if nitrous acid is a volatile gas?

A. We are only acquainted with nitrous acid in liquid dilute form, that is, I mean in water solutions, the probabilities are it is a gaseous compound and volatile.

227 Q. Well, let me ask you, do you say there is such a thing as nitrous acid gas? A. Yes.

Q. And isn't it the fact that it is so volatile you can not possibly isolate it? A. Yes, sir, that is true.

Q. Now, that would mean that it readily volatilizes at ordinary room temperature, doesn't it? A. Yes, sir, it does.

Q. Wouldn't it be reasonable then, that it would volatilize in a bake oven?

A. Yes, sir, it is constantly going outside of the bake oven or into a gas.

Q. Now I will ask you if you have any experience with baking bread made from bleached flour? A. Yes, sir.

Q. To determine if the bread had any nitrites?

A. I have.

Q. Have you made any experiments by making the dough of bread and making nitrite determinations on the dough to see if the yeast plant had destroyed the nitrites?

A. No, I have not made those experiments.

Q. What would be your opinion?

A. My opinion is from results that I have obtained on the bread, that under certain circumstances that the yeast consumes the nitrite material or the nitrous acid, probably, after it has first passed into a nitrate.

Q. Now isn't it true that not all of the gas that goes into this agitator, gets into the flour. You testified, you could smell it I believe, in the mill. A. Yes.

Q. That escapes from the agitator, does it not.

A. That had escaped from the agitator.

Q. I want to ask you one other question in reference to your digestibility experiments. Did you not in one case show that the bleached flour digested more readily than the unbleached flour. A. I did.

Q. I think you said something as to bleached flour damaging the looks of it, I mean, I just have a note—did you make such a statement as that, do you recall?

A. I do not recall making that statement.

228 Q. Well, I won't ask you about that. I will ask you, professor, if it is not true, that a straight flour can be made to resemble a patent flour without bleaching and irrespective of bleaching by the ordinary processes of milling? A. I don't think so.

Q. Are you prepared to dispute that proposition if I say it can?

A. I should just simply probably say that it could not, and let it go at that.

Q. Well, I mean, is your knowledge of the milling art sufficient to justify you in disputing the proposition that a straight flour by the ordinary milling processes can be made to resemble a patent flour?

A. Well, I say this, that I never have seen a straight flour that resembled a patent flour.

Q. Very good, but that is not the question. My proposition is that irrespective of bleaching, the straight flour by ordinary milling processes can be given a color the same or even superior, I will put it, to patent flour. Now are you prepared to dispute that?

A. Not as a general rule can it be done. It is possible, though that some such highly refined methods as Mr. Smith was telling us of, that the resemblance might be made very close, but the ordinary mill can't do it, Mr. Elliott.

Q. You say it cannot be done?

A. Not an ordinary mill working the way the ordinary mills do.

Q. I believe you testified that all grades of flour can be bleached and brought to one uniform color, did you not?

A. I believe that that is very nearly a correct statement; I don't remember, I do not recall just exactly under what circumstances.

Q. Well, I will ask you is that your judgment?

A. With all grades, no. I would not say that; the red dog, for instance, could not be brought to resemble the other grades.

Q. Well, cut out the red dog?

A. Yes, take for instance, a clear—

Q. You don't understand red dog to be flour, do you, as we ordinarily use the term?

A. Well, it is one grade of flour.

Q. All right, we'll cut that out now.

A. Yes. A clear, properly made, can be bleached so that it will resemble a patent, Mr. Elliott.

229 Q. No, that was not the question, can they all be—can the bleaching bring them all to a uniform color?

A. Yes, take the straight, the patent and the clear they can.

Q. And if you bleach them all alike, they will all be brought to uniform color?

A. I don't say that, Mr. Elliott.

Q. Well, if you bleach them any way you like, they all can be brought to uniform color?

A. If you bleach them properly, that is, if you bleach them with that object in view, you can bring them to the same color.

Q. And you say that, take any flour, from any wheat, as

many grades as you like, that after bleaching them, will not all possess, there will not be the same relative difference between those grades after bleaching as there was before bleaching?

A. Yes with that particular variety of wheat, that is true.

Q. There will be the same relative difference, or do you mean they will all be the same uniform color?

A. I mean they can all be made to resemble one another.

Q. Well, let me put this question to you. Suppose they are all bleached in the same way, will [they] be the same relative difference between those grades after bleaching as there was before bleaching?

A. Do you mean by the same way, Mr. Elliott?

Q. Well, bleach your flour the same as you bleach the patent flour?

A. You mean the same amount of bleaching?

Q. Just run it through the machine the same as you did the other?

A. I think there might be some slight difference then.

Q. That is, there might be the same relative difference between the grades after the bleaching as there was before the bleaching?

A. No, provided—there would not be that relative difference, provided the amount of bleaching re-agent was sufficient to satisfy the absorptive power of the flour, then they would all be alike.

Q. Professor, if you will just pay attention to the way I put my question. It involves this proposition, that they were all run through the—given the bleaching process in the same way run through the machines the same length of time and all conditions being equal?

A. I understood your question, Mr. Elliott, but you have not told me now how much of the bleaching re-agent would
230 apply.

Q. It doesn't make any difference, professor, my question is, take any amount you please. Well, I will put it this way, take a mill that is bleaching its flour in the ordinary way, that is bleaching it, and it bleaches all the grades it makes, including the low grade red dog. Now I ask you—and they are all treated in the same machine in the same way,—will there be the same relative difference after the bleaching as there was before the bleaching, as to those grades?

A. I will answer you as carefully as I can. If the natural run of the mill furnishes enough to satisfy the absorption of the flour barring say red dog, they might be brought—there will not be but relative difference. If, on the other hand, only a very slight quantity of the bleaching re-agent employed there will still be difference, Mr. Elliott.

Q. I object to the witness's answer as not responsive, and move it be stricken out. My question did not say anything about the absorptive—whether there was enough gas for the flour to absorb or anything about it.

A. That is what I was objecting to, Mr. Elliott, you don't give me a rational base.

Q. I am giving you all that I possess, Prof. Shepard; I am taking an ordinary mill, some mill, in this city, we'll say that is bleaching its flour, go there at any time of the day or any time and any day of the week, and go into that mill and let it bleach all the grades of flour that it is making, excluding this low grade, I ask you after that bleaching—now mind you, it does not change the bleaching in any way, after that bleaching, will the different grades, will there be the same relative difference between those grades as there was before the bleaching, or do you know that?

A. I will answer your question.

Q. Well, what is your answer?

A. My answer is this, running as they do ordinarily do, the differences will not exist after bleaching.

Q. All right, now I will ask you if you have ever tried to bleach flour with nitrous acid gas or nitrous acid will do, 231 bleaching flour?

A. I never have tried pure nitrous acid.

Q. Do you know if nitrous acid will bleach flour?

A. You mean nitrous acid, not the peroxide, of course?

Q. No, the nitrous acid?

A. Nitrous acid—I think it is conceded that it will.

Q. That the nitrous acid— A. Yes.

Q. Will bleach flour? A. Yes, sir.

Q. Will nitric acid bleach flour?

A. I think it will, yes, sir.

Q. Prof. Shepard, if I put nitric acid on flour, the chances, isn't it almost certain it would burn it up?

A. What strength acid would you pour on?

Q. Take pure nitric acid.

A. Why, I think, why, I know that it would not burn it up, Mr. Elliott, but it would destroy it as flour.

Q. Well, take commercial nitric acid, 36 per cent, isn't it, something of that kind, you say pour that on flour to make it white?

A. No, I don't say anything of the kind.

Q. Well, I said nitric acid? A. Yes.

Q. Now those are the only two nitric acids as such that there are?

A. Yes, but you know enough of chemistry, Mr. Elliott, to know that what that acid will do to that flour depends on the dilution of that acid.

Q. No, excuse me, you must not put that on me, I don't know any such thing? A. Well, I do.

Q. Well, all right. Did you ever see nitric acid as bleach for flour?

A. No, I never have tried it, but I have tried the two together, and they do it fine.

Q. Then you get peroxide of nitrogen don't you?

A. What say?

Q. You had peroxide of nitrogen?

A. Yes, sir, to start with.

Q. Now I will ask you Prof. Shepard, if heretofore you have not given testimony in a case in which you deal with the fact that nitrous acid would inhibit digestion as applied to flour?

A. Yes, sir.

Q. And I will ask you if you did not publish the results of your experiments in a paper?

A. Yes, sir.

Q. I want to hand you a copy of the Food Law Bulletin, dated Chicago, August 12, 1908, which I will ask the stenographer to mark as Claimant's Exhibit 201. Calling your attention to that exhibit, will you kindly say do you recognize that as your article?

A. Yes, sir, I recognize it.

Q. And I will ask you further if you can state that that is not the article which by common consent we used as the basis of your cross-examination in Fargo, at the trial referred to?

A. Yes, sir, that is the one.

Q. And I will ask you further if with the exception of one or two typographical errors, you did not state that this correctly reported your investigations, if you remember?

Mr. Butler: Just a moment, I don't know what the purpose of this is, whether it is to offer it in evidence or not. If so, the line of inquiry is immaterial.

Mr. Smith: Suppose, Your Honor, it is laying the foundation for subsequent proof.

Mr. Butler: Is it offered in evidence?

Mr. Smith: Have a little patience, I don't think it shows anything improper.

Mr. Butler: I object to the cross-examination concerning what is in a writing not offered in evidence, and when counsel expressly declines to say whether or not he will offer it in evidence.

The Court: Mr. Elliott, you ought to say yes or no to that.

Mr. Elliott: I have not asked the witness a thing about the contents of this. I am not going to ask him.

The Court: Well, go on a little bit, no use examining him about some paper unless it is to go in evidence.

Mr. Elliott: I am not going to examine him about it.

(Question read by the reporter.)

The Court: He may answer that, we will see what becomes of it now.

A. I answer that, yes.

233 Q. Now I want to ask you if in that case in Fargo, in which you testified, if it is not within your knowledge that the court made one of which I am going to read to you, as a finding of fact?

Mr. Butler: Just wait a moment before it is read—the question so far stated is this, is it not within your knowledge that the court at Fargo, made a finding of fact which is as follows:

The Court: I understand, Mr. Butler.

Mr. Butler: Now I am not unwilling at the proper time and place to try the Fargo case, which was a suit in equity, as it is reported, and your Honor knows all about it.

The Court: I know the Dakota case.

Mr. Butler: But he has just offered to talk about findings of fact there, and we object to the statement of any claimed substance of any finding under the form of asking a question.

The Court: Objection sustained.

To which ruling claimant then and there duly excepted.

Mr. Elliott: I would like to note an exception to that ruling.

Q. Now I will ask you, Prof. Shepard, if you did not testify that bleaching impairs or destroys or something of that kind, the odor of flour? A. I did.

Q. And would you be able to tell by the sense of smell that the flour has been bleached?

A. When it has been freshly bleached I could but after a sufficient time had elapsed I could not.

Q. What do you mean by sufficient time?

A. Oh, anywhere from two days to a week, depending on how the flour was stored.

Q. And you could not, after that time you could not tell whether it has been bleached or not, by the sense of smell?

A. No, sir.

Q. I hand you a package of flour marked "Defendant's Exhibit 202" and ask you to smell of the flour therein, and state if you can tell by the sense of smell if it has been bleached or not?

234 Mr. Butler: We will object to the experiment, test. If we begin that we will begin to enter upon a field it seems to me that it will never end.

The Court: I tell you, Mr. Butler, I have been thinking a little, but not consecutively about this matter of experiments. I assume that at some convenient time to counsel they will cite authorities or an argument will be made upon that question. Without reference to whether this will be a precedent or not, I see no objection to a very limited number of these, but before I go into this experimental field everything, cooking bread, and a whole lot of these things, I will want to be further advised than I am now to enable me to pass on this question.

Witness: I will state, Mr. Elliott, that I have such a cold this morning that I am physically incapacitated, could not, I am in no condition to make a test, but I tell you what I will do, I can do no better, I show my good will even if I felt—

Q. That is fair. A. I can't tell you.

By Mr. Smith:

Q. What you say? A. I can't tell.

The Court: I will say that Mr. Elliott, so there may be nothing regarded at all decisive or a precedent, before either side enters into any experiments I would like to be advised by counsel for both sides—I suppose we do not stop now, and some time or other we must stop and consider it.

Mr. Elliott: I understand your Honor to mean, that before we introduce any experiments, or make any, you wish us to consult you and with other counsel?

The Court: Both sides. I have no preconceived notions about it, unless it might be I could say that both sides would be swamped if we are going to do a lot of cooking school or chemical laboratory, take a bite of bread out of every conceivable kind of flour, I don't know what kind of a fix
235 we will be in when we get through, I don't know about these things, I don't know to what extent you are going into it.

Mr. Elliott: That is all as far as this is concerned.

The Court: I am neither for you or against you, Mr. Smith, I don't know about that.

Mr. Butler: I understand the rule to be that the witness may not be required to enter upon physical tests.

(At this point the jury was excused, and a lengthy argument and colloquy was had between counsel and the court as to permitting the witness to make certain tests and experiments in the presence of the court and jury.)

Whereupon the jury returned to the jury box, and the examination proceeded as follows:

The Court: I have no objection to these few exhibits, I am not sustaining the objection to Mr. Elliott's first question.

Mr. Smith: Go right ahead with it.

The Court: But of course, you understand what we have been at here.

The objection to this particular exhibit 202 will be overruled. He has already answered it.

Mr. Smith: Yes, let it go at that.

The Court: And with the right to recall the witness, perhaps.

Mr. Smith: Yes.

The Court: Or rather, I assume that these witnesses want to get away as soon as they can; I don't know anything about this gentleman. I will decide this question definitely by tomorrow morning and reach a conclusion by which I will stand.

Mr. Elliott: I will finish the cross-examination.

236 Q. There was just one question I neglected to ask. You state, I believe that you detected a change in one of the color compounds by bleaching it was the yellow I think?

A. In both of them, Mr. Elliott.

Q. Sir? A. In both of them, sir.

Q. Well, didn't one disappear there?

A. The orange disappears there, yes.

Q. I just want to ask you if you made any examination of natural wheat flour to see what happens to the coloring matter? A. No, I have not.

Q. That is all.

The Court: Any re-examination, Mr. Butler?

Mr. Butler: I think perhaps a question or two.

Redirect Examination

By Mr. Butler:

Q. During the cross-examination of Mr. Elliott, as I recall it, you were asked in substance whether in the examination of bleached flour you had ever isolated nitrous acid, and you said you had not, and I believe that the acid itself had never been isolated. Will you describe to the court and jury how there may be, if it is a fact, a complete demonstration of the existence of nitrous acid or nitrite reacting material or nitrites without solution, in the sense that we would take a pin from a sack of wheat?

Mr. Elliott: I object to the question so far as it relates to nitrites, because the witness has specifically stated first, he did not get them, and second, he did not believe they were there.

The Court: You may answer.

To which ruling of the court claimant then and there duly excepted.

A. Well, take for instance, a certain quantity of the flour depending upon how much of these materials are present,—these are placed in a flask similar to this one right here; the flour is placed in the bottom, and a certain quantity of
237 pure distilled water is turned on, and you shake it up, agitate it like that, keep shaking it up, allowing the water to cover every particle of flour. After it has stood a few moments, the water then can be turned off, and run through a filter paper, and you will get a perfectly clear solution. Now, the nitrous acid, or nitrites, which I have said I do not believe exist there, comes in that water solution. Now a nitrite or a nitrous acid that will give exactly the same base, so we can apply it, we take a re-agent, called the Griess re-agent, and turn in there, it is made of some chemicals with great long names, and immediately a pinkish color begins to develop, providing the nitrous acid is there; we can demonstrate in that way absolutely that this material is there, but as for isolating it, why, that can not be done, nobody can do that.

Q. Is the method described by you just now to the jury well known and recognized by chemists?

A. Every chemist uses it.

Q. Mr. Elliott called your attention to the fact that chemical combinations of poisonous elements are not necessarily poison, that is to say as I would apply the general statement. Assuming an acid which is poisonous, combining with a base, making a salt, it does not necessarily follow that the salt is either poisonous or non-poisonous, does it? A. That is true.

Q. And each particular combination must be viewed by itself? A. Oh, it is no basis.

Q. Now as respects the atmosphere, suppose it be decomposed, and the oxygen taken out, what would be the effect of attempting to leave in the remnant?

A. Nothing but pure nitrogen would remain, and we would die in less than—well, we would not last two minutes; we would die of oxygen starvation.

Q. Now you were also asked whether you ever found nitric acid in the flour, and I think you were also asked if you never did find it, how do you know that it was formed in the flour by treating it with this nitrogen peroxide gas. You may explain that to the jury.

238 Mr. Elliott: I object to that, your Honor, as mere repetition. The witness was given full opportunity and he has given his testimony on that point. I don't think it is proper redirect examination.

The Court: Now you may or may not be right. Mr. Butler may or may not be right, but I do not recall therefore will not make a ruling which would require me to say that you are right, and he is wrong, or you are right and he is wrong, so he may answer, of course, subject to further examination by you.

To which ruling of the court claimant then and there duly excepted.

A. We know that the nitric acid is there, because it is one of the well established principles of chemistry that when nitrogen peroxide comes in contact with water, which nobody denies or disputes that it does, that both nitrites and nitric acids are present, they are formed, now then it doesn't matter where you take these nitrites or this peroxide, you allow it to come in contact with water, which it certainly does when it comes in contact with the flour, and both acids are formed, there is no possible or imaginary way in which nitric acid could escape being in the flour. The principal thing with me, however, is that I had not made a test for that nitric acid, there are plenty of chemists have done it.

By the Court:

Q. You have or have not?

A. I have not, because it was unimportant, and besides the question, we was working after some other things—after the nuclei.

Q. Something was said to you about color resulting from bleaching the flour, and the phrase "chalky white" was used, if the question was answered, I can not remember with cer-

tainty, how does that color compare with the color attained in good wheat flour of high grade by the process of natural aging, or are we to understand the colors are identical?

A. Not at all.

Q. Or similar or different?

239 Counsel for claimant objects to the question as leading, suggestive and not proper redirect-examination, having all been covered by him in his direct testimony.

Mr. Butler: It may be, Mr. Smith.

The Court: You will all be given the further right. Go ahead.

A. The flour that is naturally aged, is whiter, but it is a creamy white, we describe it as a creamy white; while flour that has been bleached to this chalky whiteness is a more dead white or an ashy white.

Q. In Government's Exhibit 2, which is in evidence, I find this statement, among the specifications: "I have found that flour after being acted upon by the modified air, that is air which has been"—

Mr. Elliott: Just one moment. I object your Honor to the reading of this statement into the record from this patent, for the reason that claimant in this case is not bound by any statement that Mr. Alsop makes in any patent as to any effects on flour, or what not. He may be right to get the report, but I don't think it could possibly have any bearing upon the claimant's position in this case.

The Court: Objection overruled.

To which ruling of the court claimant then and there duly excepted.

Q. I will restate the question—I had not finished the question, Mr. Elliott, and your objection was to my finishing it, if that be so then I may go on, I had forgotten for a moment.

The Court: You are now reading from the statement of the patent.

Mr. Butler: In evidence, yes, sir.

Q. Which is as follows: "I have found that flour after being acted upon by the modified air, that is air which has been acted upon by the spark, your matter is very notably bleached, presenting a dead white color, in contrast with the
240 creamy yellow of the untreated flour." Now in your description of chalky white, is there any distinction to be made between that and the dead white color referred to here?

A. I make no distinction.

By the Court:

Q. Sir?

A. I make no distinction, I mean the same thing if I say dead white or chalky white.

Q. One of your answers in cross-examination related to the effect upon the proteins contained in the flour by this bleaching process, and your answer was as I caught it and hold it in my hand from my note, that if pushed far enough, it will turn protein matter yellow. I have your answer down. Make it clear what you refer to as being pushed far enough. I would like to have you, if you so testified, explain that to the jury, and how it happens? A. Simply this—

Mr. Elliott: Just one moment. I would like to interpose an objection to the question as incorrectly detailing the testimony of the witness.

Mr. Butler: In what respect, Mr. Elliott?

Mr. Elliott: I have no recollection of his testifying to any such thing.

Mr. Butler: Yes, he did.

Mr. Elliott: My recollection is that I asked him the effect of peroxide of nitrogen on protein matter, and he said it was to turn it yellow. Now you may be wrong, I may be wrong, I simply—

Mr. Butler: I don't see the difference between us yet.

The Court: Well, go on, professor.

A. I meant by the expression pushing it far enough, that is to employ enough of the re-agent to do it. Now the gentlemen of the jury must always bear this in mind when we chemists are talking, that we make great distinctions between a diluting agent will do one thing, and that some one made strong enough, will do altogether something else; that is what I mean, I mean it must be strong enough to—

Q. In this morning's cross-examination touching the bread experiment tests, you were asked whether yeast was employed, and whether or not so testified concerning the point, whether or not yeast consumes nitrites, and your answer was, [I] as I understood you, that it did, after they had changed some way—I don't know?

A. In the nitrites?

Q. Now make that clear, if there be a distinction between the consumption of nitrites directly, and the consumption of nitrites after the chemical alteration?

A. I hold, and a very large number of chemists hold, with me, that nitrites directly are consumed as a food by neither

plants nor animals, but these nitrites by taking up one more item of oxygen can pass into nitrates which are admittedly a plant food.

Q. Have you in mind any familiar example of that in ordinary life, plant life? A. Yes.

Q. Agricultural pursuits?

A. Yes, sir, I have, for instance, take sodium nitrate, Chili salt-peter; it is mined over on the coast of Chili, and it is shipped all over the world and used by all farmers as a fertilizer, but nobody ever does on the nitrite, and there are species of bacteria in the soil and in the air, and in the water, and even in the air, Mr. Butler, that can take nitrites that are formed in the soil, and change them into mild and useful nitrates and plants consume those nitrates.

Q. I think that will be all.

The Court: Anything further, Mr. Elliott?

Mr. Elliott: No.

242 Overton W. Tucker, called as a witness on the part of the Government, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. You are a miller by trade? A. Yes, sir.

Q. And you are employed by the defendant, the Wellington Mill and Elevator Company at Wellington?

A. Lexington Mill & Elevator Company at Lexington.

Q. Nebraska? A. Yes, sir.

The Court: Now, Mr. Tucker, talk as you talk out on the Nebraska prairies so we can hear you.

A. Yes, sir.

Q. Did you mill the flour that was seized in this case?

A. Yes, sir, I set the mill for the flour that was seized in this case.

By the Court:

Q. What? A. I set the mill.

Q. What do you mean by setting the mill?

A. Well, I started the mill and the principal part of the flour was made at night, but I started the mill and set the mill right.

Q. Talk to the jury? A. Right to make the flour.

Q. You are the boss miller there? A. Yes, sir.

Q. In charge of that mill? A. Yes, sir.

Q. And it was run night and day?

A. Yes, sir, had been running night and day, but had not

been running that day owing to some repairs that I had been making, and I did not get started until evening.

Q. What percentage of the total flour contents of the wheat, was included in the sacks seized? A. Ninety per cent.

Q. Ninety per cent?

The Court: I didn't understand, you say what?

Q. What percentage of the total flour contents put into those sacks were marked patent; he says ninety per cent.

A. Approximately 90 per cent.

243 Q. Was there any wheat known as yellow berry or yellow belly included in the wheat that made this flour?

A. It is possible that there was.

Q. How much? A. I can't tell you.

Q. Give us your best—it was mixed yellow belly with some thing else, was it not?

A. Practically all the wheat in Nebraska is.

Mr. Butler: We move to strike out his answer as not responsive.

The Court: Yes, that is stricken out.

(Question read by the reporter.)

A. Yes.

Q. What percentage of it was yellow berry or yellow belly?

A. I can not answer the question.

Q. About what percentage?

A. It would be an estimate, if I answered it.

Q. Give us your estimate?

A. Oh ten to thirty per cent.

Q. Are you willing to say that it was not as much as—say positively that it was not as much as thirty-five per cent yellow berry or yellow belly?

Counsel for claimant objected to the question as leading, suggestive, and attempting to cross-examine his own witness, incompetent and immaterial.

The Court: Well, for reasons which you will indulge me not to state, I think you may ask leading questions.

Q. Go ahead. Have you the question in mind exactly, Mr. Tucker? A. No.

By the Court:

Q. How?

A. No, I would not say positively that it was not—

Q. Will you say positively that it was not as much as 40 per cent yellow belly or yellow berry? A. No, I won't.

Q. Will you say positively that it was not as much as 50 per cent yellow berry or yellow belly?

Same objection by claimant as to this.

Q. Half yellow belly and half something else?

244 Same objection by claimant, as incompetent, irrelevant, immaterial, cross-examination of his own witness, no proper foundation laid and wholly unfair.

The Court: Leading questions, are permissible, what the reasons are is not best for me to state, but why unfair?

Mr. Smith: Simply because the witness has said he don't know, he can't state exactly, and therefore it is entirely unfair to say to him "Now can you say positively"? The witness has said he couldn't tell.

The Court: He can give an estimate, I think he might answer.

Q. What do you say as to 50 per cent?

A. No, I could not answer that.

Q. Well, what per cent [co] you get to, I suppose what you are driving at—

Q. Well, if the court will allow me to state—

The Court: Yes.

A. One certain fact, I think I can enlighten him on that.

The Court: Turn to the jury please.

A. That I don't know, no other living man knows where a yellow berry wheat begins or ends.

Mr. Butler: I move to strike out his affirmation about what other people know.

Mr. Elliott: I object to striking it out.

The Court: Well, the answer will stand.

Mr. Butler: That part of the answer what he thinks other people don't know.

The Court: Well.

By Mr. Butler:

Q. Do you know how many Alsop bleachers you had in the mill when this flour was milled, with certainty?

A. Yes, sir.

Q. How many? A. One.

Q. How many generators were there? A. One.

Q. How many were in operation? A. One.

Q. Was there any that was not in operation?

A. No.

245 Q. Do you swear that there were not two apparatus there, either in operation or not in operation?

A. There were two apparatus there but it was not generators.

Q. Two bleaching apparatus? A. Yes, sir.

Q. Alsop bleaching apparatus? A. Yes, sir.

Q. Each apparatus has a generator, hasn't it?

The Court: Let's get along.

A. No, sir.

Q. There can be an Alsop bleaching apparatus without a generator? A. Yes, sir.

Q. No generator at all?

A. You can operate two electrifiers from one generator.

Q. What do you mean by an electrifier—agitator you mean?

A. No, I mean an electrifier.

Q. How many arrangements were there for making flaming arcs in that mill? A. Two.

Judge Scarritt: Let's understand what he calls a generator.

Mr. Butler: That is what I intended, he described is as a generator.

A. The generator is what I described as the machine that manufactures the electricity.

Q. That is in the place where the flaming arc is, isn't it?

A. No, sir, not the way I understood.

Q. Oh, you mean dynamo? A. Yes, sir.

Q. Oh, yes, so then you say there was only one apparatus there, because there was only one dynamo?

A. I didn't say there was only one apparatus there; I said there was one Alsop bleacher.

Q. You don't consider a dynamo— A. A dynamo.

Q. Well, there was one dynamo and two places to make the gas for bleaching? A. Yes.

Q. That is what I mean, only one dynamo, and two places to make the gas? A. Yes, sir.

Q. What floor were those two bleachers?

A. Second floor.

Q. What amperage was employed on the one in operation, you say there was only one operating on this floor or

246 two, I mean now bleachers?

A. I think that both of the electrifiers were in operation.

Q. That is what I mean? A. Yes, sir.

Q. But one dynamo made electricity enough for both?

A. Yes, sir.

Q. And you say two bleaching machines upon this floor, two machines generating what you call electrifiers, generating this gas? A. Yes, sir.

Q. You had two of them?

A. Yes, sir, I had two of them working generating gas.

Q. What voltage to each? A. I could not state.

Q. Or amperage to each?

A. About three to three and a half.

Q. To each one? A. No, to both of them.

Q. To both of them. A. Yes, sir.

Q. Divided equally between them or—

A. Well, practically equally, both worked on one end.

Q. Well, can't you tell right at a glance what the amperage was, isn't that part of the business to set that just the same as it is to set your streams?

A. You can not set it definitely.

Q. Why?

A. Because the making and breaking of the contact swings the hand of your meter, you can not get it to a positive point.

Q. Can't you control the volume of the current used?

A. Yes, sir.

Q. Well, what volume did you use there to bleach this flour?

A. I used three to three and a half.

Q. What voltage?

A. I don't know definitely what the voltage was.

Q. Well, about what? A. Oh, possibly 450 volts.

By Judge Scarritt:

Q. On both of them? A. Yes, sir.

By Mr. Butler:

Q. Were both these generators of gas, not of electricity but of gas, upon the same floor? A. Yes, sir.

Q. And were they at the same part of the mill that the agitator is which the flour is agitated to work the gas in with it? A. They were on the same floor some distance apart.

Q. But the agitators of these two gas generators were on the same floor? A. Yes.

Q. What floor? A. Second floor.

247 Q. Second floor, how far from the generator was each one from the agitator was each one, how far did the gas have to go? A. About thirty feet.

Q. Have any storage tanks on the way in either case.

A. Yes, sir.

Q. How many. A. One.

Q. On each one? A. No, sir.

Q. You had one pumping it direct and the other one through a tank? A. No, sir.

Q. Well, how? A. Both machines pumped into the tank.

Q. Both machines pumped into the same tank?

A. Yes, sir.

Q. And that tank was connected directly with the agitator?

A. Yes, sir.

Q. Are you familiar with the patent for these tanks that was gotten out by John E. Mitchell and a man named Parks—Mitchell who testified yesterday, and a man named Parks, the patentees of these tanks?

[Q.] Well, I don't know as I clearly understand what patent you mean.

Mr. Smith: You mean the patent or the tank?

Mr. Butler: I want to find out whether the same kind of tank Mr. Mitchell patented or if they are different ones.

Q. (Handing to witness Plaintiff's "Exhibit 7") The paper which is marked Government's exhibit 7, containing a cut purporting to be a system of three tanks, under the caption: J. E. Mitchell, Method of treating flour. Application filed September 24, 1904. Now in that picture you see there is a series of three tanks? A. Yes, sir.

Q. So arranged that the gas passed from one, it shows the gas generator, goes into one, and then into another, and then another, and finally off to the flour bleacher. Now was that the kind of a machine you had? A. No, sir.

Q. Well, it was the same principle exactly, wasn't it, except you only had one tank instead of three? A. No, sir.

Q. Well, you had one tank between the gas generator and the flour agitator? A. Yes, sir.

Q. And there is three indicated on the picture?

A. Yes, sir.

Q. So it was the same in principle, was it not, except in
248 your instance you only had one tank, where Mr. Mitchell's picture there has a system of three?

A. There is a difference just the same.

By the Court:

Q. Sir?

A. There is a difference, there is a mechanical difference.

By Mr. Butler:

Q. I know, but I mean as far as the number of tanks and connection is concerned, it is the same in number.

A. No, we had one tank, and here you have three tanks.

Q. That is what I say, except that you had one and they had three?

A. There is still a difference.

Cross-Examination

By Mr. Smith:

Q. You have been employed at this mill how long?

A. Three years.

Q. And prior to being employed in this mill where were you employed? A. Gothenburg.

Q. Nebraska? A. Yes, sir.

Q. How far is that to this mill?

A. 25 miles.

Q. In the same county? A. Yes, sir.

Q. And during the six years that you have been employed in those two mills in what capacity have you been employed?

A. Head miller.

Q. Do you purchase the wheat that is bought by the Lexington mill? A. No, sir.

Counsel for the Government objects as incompetent, irrelevant and immaterial.

The Court: He says no.

Q. Do you examine the wheat as it comes to the mill, or do you examine it before it goes over the rolls?

A. I examine it before it goes over the rolls.

Q. I see, and have been doing that all the time you have been head miller at these two mills? A. Yes, sir.

Q. And in that way have you become familiar with the grades and kinds of wheat raised and on the market there in Nebraska? A. Yes, sir.

249 Q. Now tell the jury what was the grade of wheat that was used in milling this flour?

A. It was a grade of wheat as we get in that part of the country, it [—] what we call a No. 2 hard wheat.

Q. What is the fact as to whether or not there is any wheat raised or on the market there that grades No. 1 hard wheat?

Counsel for the Government objects to the question as immaterial and not cross-examination.

The Court: He may answer.

A. No, there is no No. 1 hard wheat.

Q. Was there any soft wheat purchased?

Mr. Butler: I object to it as not cross-examination because we are compelled to call our adversary. Now if they want to prove that this is the first quality hard wheat, it is for them to prove it on their side of the case. He said that there was certain wheat there and he mentioned one yellow belly or

berry from 10 to 30 per cent, and it might be as high as 50 per cent. Now may be that is the best wheat in the world, I never was in—

The Court: That is the trouble, Mr. Butler, I don't know what this yellow berry is. He may answer it, I think now.

Mr. Butler: Your Honor will observe that I did not call for the quality of wheat at all, and I certainly shall contend that we are at least not bound by the opinion.

The Court: You used some of those two at some time evidently.

Mr. Butler: I at least observe we are not bound by the opinion?

The Court: He may proceed.

(Question read by the reporter.)

A. No, sir.

Q. Mr. Butler asked you a question in regard to wheat
250 that is called a yellow berry. Is the yellow berry a hard wheat or a soft wheat? A. Hard wheat.

Q. What is the other name that is applied to other kind of hard wheat that you got there—turkey red?

A. Turkey red.

Q. You refer to some kernels as turkey red and some of it as yellow berry? A. Yes, sir.

Q. Now do you know whether or not they grow in the same field? A. Yes, sir.

Q. From the same seed?

A. That is my opinion that they grow from the same seed.

Q. Yes, whether or not wheat is referred to as turkey red or yellow berry, is dependent, is it not, somewhat upon the character of the soil in which it grows?

Mr. Butler: We really don't think that this miller is qualified as an expert on that question—the causes of the color of grain.

The Court: Well, he may answer.

(Question read by the reporter.)

A. I think it is.

Q. And it is true, is it not, that if a farmer sows turkey red wheat that in the harvesting as he comes to the mill there will be some grains in there which in trade will be regarded as

turkey red and some as yellow berry; that is true, is it?

A. Yes, sir.

Q. But it is all hard wheat on the market, isn't it?

A. Yes, sir.

Q. You say it is wheat that was used to make this flour?

A. Yes, sir.

A. Yes, sir, I saw it.

The Court. Flour that was seized.

Q. Yes, flour that was seized? A. Yes, sir.

Q. And I want you to tell the jury whether or not from your knowledge of wheat there in Nebraska, the wheat that is on the market, the wheat that the farmers brings to the mill, whether or not that was or was not first quality hard wheat?

A. Yes, sir, it was.

251

Redirect Examination

By Mr. Butler:

Q. Do they sow yellow belly; do the farmers seed yellow belly? A. I suppose they do.

Q. And when they seed yellow berry does that produce something else, or does it produce yellow berry?

A. The farmer does not intentionally seed yellow berry.

Q. Well, I don't care about his intention, it will grow just the same no matter whether he intended to do it or not. Now when he seeds yellow berry does it produce some other kind of wheat or does it produce yellow berry?

A. It is possible for it to produce a turkey red wheat.

Q. Yes, the first quality hard wheat? A. Yes, sir.

Q. A dirty first quality hard wheat.

A. A turkey wheat I said.

Q. I misunderstood you, I thought you said a dirty. Have you ever known that to be done. A. Not absolutely.

Q. You say the farmers do not intentionally sow the yellow berry? A. No, sir.

Q. Now if it is the first quality hard wheat and will produce the first quality hard wheat why isn't it selected as seed and all the rest thrown away?

Counsel for claimant objected.

The Court: He may answer.

A. That is a mighty hard question to answer, for the simple reason that it would take a mighty lot of machinery to separate the yellow belly from the red turkey wheat.

Q. But then if you were a farmer and could get a yellow belly, you would prefer to sow it because it is the first quality hard wheat?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial.

252 The Court: Well, there was some question as to whether or not he was an expert on wheat raising, but I think he ought to answer. He may answer this question.

A. I would not choose a yellow berry wheat for seed.

Q. You would prefer to choose turkey wheat, wouldn't you?

A. Yes, sir.

Q. And financial or pecuniary considerations would be what determines you about that?

Counsel for claimant objects to the question as not proper

Mr. Smith: Getting into bulls and bears again, that's all.

Recross Examination

By Mr. Smith:

Q. I wish you would describe this tank that Mr. Butler asked you concerning, the storage tank, where it is located and how it operates and so forth?

A. The storage tank is located about half way between the electrifiers and the agitators.

Q. Do pipes from each of the generators run into this storage tank?

A. No, the pipes run into the "T" and the one pipe runs to the storage tank.

Q. Well, run to the "T" and then are they connected by one pipe to the storage tank. A. Yes, sir.

Q. Then how many pipes are there connecting the single tank with the agitator? A. One.

Q. And what is the length of the pipes from the electrifiers to the storage tank? A. About 15, 16 feet.

Q. Yes, and what is the size of that storage tank?

By the Court:

Q. Gallon, barrel or what, how large is it?

A. It is a round tank about 4 by 8 I should think.

Q. Inches? A. No, feet.

By Mr. Smith:

Q. Four feet?

A. Four feet in diameter by eight feet high.

Q. What is it made out of? A. Made of galvanized iron.

By the Court:

Q. That is the tank? A. Yes, sir.

By Mr. Smith:

Q. And then how far is it from the tank to the
253 agitator? A. About 15 feet.

Q. The agitator is that through which the flour sifts?

A. Yes, sir.

Q. And what sort of a pipe connects the storage tank with the agitator? A. Galvanized iron pipe.

Q. More than one? A. No, sir, one.

Q. How large a pipe?

A. Two inch, I believe it is 2 inch, that is approximately two inches on the outside.

Q. Are you giving the outside measurements?

A. Yes, sir.

Q. About two inches in diameter outside measurement?

A. Yes, sir.

Q. Has that pipe ever been taken out and removed while you have been there; did you ever have to take it out to clean it.

A. Yes, I have taken it out once or twice to clean it.

Q. Has a new pipe ever been substituted while you have been there? A. No, sir.

Q. Have you ever been able to observe any eating or corrosion on that pipe? A. Not to speak of.

By Mr. Butler:

Q. Not to speak of.

By Mr. Smith:

Q. Well, have you any at all either inside or outside, if you have I want you to describe it?

A. Not that I have ever detected.

Q. You say it is taken out occasionally and cleaned?

A. Yes, sir.

Mr. Butler: Why, Mr. Smith, let him tell what is in it.

Mr. Smith: Haven't I a right on cross-examination, to put any question I want to—leading.

Mr. Butler: I object to the question as leading and suggestive and not cross-examination.

Mr. Smith: If it is not proper—

The Court: This is a new subject matter, no doubt about that, but you said the witness wanted to leave, he may answer, but I doubt whether you ought to lead him.

254 Q. Well, you may state what it is that gathers on the inside and why you take out the pipe to clean it, remove it, what do you do?

A. Well, the electrifiers are supplied with a supply of fresh air from the bottom of each machine by means of a pump that goes up and down in that air, and every flour mill has certain quantities of dust in it, and this pumps this dust in at the bottom, and as it is forced through this flaming arc, it is my opinion that the flaming arc burns that to an ash which collects in the pipes.

Q. And that is what you took it out to remove?

A. Yes, sir.

Q. So that the air can circle through it more rapidly?

A. Yes, sir.

2d Redirect Examination

By Mr. Butler:

Q. What kind of a pipe is that; is it an iron pipe?

A. Yes, sir, it is a galvanized iron pipe.

Q. And your idea is that the natural accumulations on the inside of the pipe is the ash that results from burning the dust in the air that is pumped through the gas generator; is that right? A. That is my absolute opinion.

Q. That is your absolute opinion, that this pure air that is pumped into the gas generator, when the impurities are consumed, accumulate so much ash that you have had to take the pipe out to clean out the ashes from the dirt burned out of this pure air? A. Yes, sir.

Q. Now is there anything to prevent—is there any valve that will let this air go through the pipe from the tank to the agitator which will keep the ashes and dirt and results of combustion from going into the agitator?

A. Well, the storage tank for the gas is sufficiently large that when this air is pumped into this storage tank, where it has a chance to spread out, it will naturally drop a dust.

Q. In the tank?

A. When it spreads it will drop the dust and the dust will go partly to the bottom of the tank and some may go on through with the air, but the natural philosophy of the
255 thing is that where it has a chance to drop, that it will drop, the principal part of it.

Q. Then is this which is in the pipe leading from the gas generator to the agitator, for the purpose of catching these ashes and product of combustion that is taken out of the pure air? A. No, sir.

Q. But it does catch it?

A. It does catch some of it.

Q. But a good deal of this is blown right straight through into the flour, isn't it?

A. Well, I couldn't say that there is any.

- Q. Well, what is there to stop it as a mechanical method.
- A. There is nothing to stop it except this one tank.
- Q. How long ago is it since you cleaned out that pipe?
- A. I should think it is about a year ago.
- Q. What was the color of the stuff you took out of the pipe?
- A. It was a dark brown substance.
- Q. Brownish?
- A. Yes, sir.
- Q. Now darker than ashes, ordinary wood ashes?
- A. Yes, sir.
- Q. It was darker than the air that comes from burning up the flour?
- A. I never burned up any flour, I don't know, I never saw—
- Q. You never saw.
- A. Flour ash, no, sir.
- Q. You never saw the flour, say how would it compare with this stone here, I am a little color blind and I won't undertake to say what color it is, but was it something the color of this stone?
- A. It is a trifle darker than that stone.
- Q. Now the stone is mottled in appearance, and how did it compare with the darker colorings of this stone here?
- A. Well, I should say that it was all about that shade, I couldn't say definitely, but I think that it is about the shade of the darker spots on that stone.
- Q. And it was fine like ashes?
- A. Yes, sir.
- Q. No scales there?
- A. No.
- Q. What?
- A. No, I don't think there was any scales.
- Q. Do you clean that pipe yourself personally, or just tell the boys take it out in the air and clean it?
- 256 A. Well, I have cleaned it personally myself.
- Q. How many times?
- A. Well, I remember of cleaning it once personally myself.
- Q. Now what I am trying to get at, was this substance scaly?
- A. No, I don't think that it was; I wouldn't say that it was scaly and it has been a year ago.
- Q. Did you smell of it, of the substance that came out.
- A. Not more than just working with it in that way.
- Q. Did you detect any odor about it?
- A. Yes, sir, a slight odor.
- Q. What did it smell like "Exhibit 6" in this court room?
- A. Well, I couldn't say definitely that it smelled the same as that, it may have had that—
- Q. Pungent odor?
- A. Yes, sir, it may have had some of that odor.
- Q. That is the substance that came out of the pipe?
- A. Yes, sir.
- Q. Did you ever clean your tank since you put it in?
- A. Yes, sir.

Q. How many times? A. I have only cleaned it once.

Q. Once, when was that.

A. I think it was—Oh, it is probably two years ago.

Q. Galvanized iron tank? A. Yes, sir.

Q. Did that stuff have the same odor as the gas in the "Exhibit 6" here? A. Somewhat.

Q. Somewhat the same odor. How much stuff did you take out of that tank, how many quarts or pints or ounces or gallons when you cleaned it?

A. Oh, possibly half a bushel.

Q. Half a bushel, and that was about as dark as the darkest portions of this stone at the clerk's desk?

A. Yes, sir.

Q. And it smelled with that peculiar pungent odor?

A. Yes, sir.

Q. Of the gas in the bottle here?

A. Yes, sir, to some extent, I would not say exactly.

Q. You were in the court room when that bottle was open yesterday, were you? A. Yes, sir.

Q. And you smelled it where you were, did you?

A. Well now, I could have drawn on my imagination,
257 I have smelled it, I suppose, but to swear that I smelled that odor, I could not do it, I was sitting in the back part of the house there.

Q. Did you ever smell any gas around the gas generator?

A. Yes.

Q. And your imagination suggested that this was exactly the same as that in smell, except as to strength, wasn't that it?

A. No, I would not say that it was exactly the same.

Q. Well, like it, similar to it?

A. Somewhat, I am not—

Q. It is hard to tell how anything smells except by saying it smells like that thing or this thing or the other, I don't know in words to tell it. Did you ever open the agitator when the gas was blowing in there? A. Yes, sir.

Q. Did you smell it? A. You can smell some of it.

Q. Did you ever open the spout that was running down from the agitator into your bin? A. Yes, sir.

Q. Did you smell it?

A. Yes, sir, you can smell some.

Q. Did you ever go down in the flour bin? A. Yes, sir.

Q. Where the flour bin was coming fresh from the bleachers? A. Yes, sir.

Q. Did you smell it. A. Yes, I smelled some gas.

Q. And it smells just like this gas in court, doesn't it?

A. I wouldn't say that.

Q. Well, similar, the same pungent smell?

A. I don't know what pungent is?

Q. Neither do I, that is what you and I are alike about that. Now so we'll know what kind of looking stuff that was in the pipe, what kind of a spout did you have running from the agitator that you ran out into the bin first, did you?

A. Yes, sir, I dropped—

Q. Now this bleaching is at the end of the mill, isn't it?

A. Yes, sir.

Q. Right after the milling?

A. At the end of the system.

Q. I mean of the mill, the system called the whole thing, the mill? A. Yes, sir.

258 Q. And it could be taken out and you would have your mill complete without the agitator the mill would be complete, if you didn't want to bleach it, simply move this agitator aside and connecting your spout direct with the bin, wouldn't it? A. Yes, sir.

Q. And so the only change involved would be setting that thing aside, and take this pipe instead of running it into the agitator run it into the bin or sacks or barrels or whatever you wanted to do with the flour; that is right isn't it?

A. Yes, sir.

Q. Now what kind of a spout did you have conducting the flour out of the agitator? A. We have a straight spout.

Q. Is it square? A. Yes, sir.

Q. All around? A. Yes, sir.

Q. And right angle corners? A. Yes, sir.

Q. And does it run straight down or does it run slanting?

A. Well, it runs very nearly straight; I have a valve so that I can throw it into shift bins if I wish.

Q. Now did you ever have occasion to clean out in that spout, did it ever clog or stop? A. No, sir.

By the Court:

Q. Sir? A. No, it has not.

By Mr. Butler:

Q. But the flour coming out at the end in the bin has this odor that we have referred to?

A. Yes, it has some of the odor.

Q. Now does not flour accumulate in the angles a little, just a little ribbon of flour down along the corners of your spout?

A. Well, I have seen that accumulate in spouts in the mill.

Q. Yes, and I am speaking of this mill now.

A. Well, I couldn't say as to this special spout that we are speaking about.

Q. Haven't you observed, or have you observed, I don't know whether this incline is right, that that flour that so

accumulates and stops there for some time, that it does not keep running right along but lets the flow go by?

A. Yes.

259 Q. That that flour turns about the same color as the stuff that you take out of the tank and out of the pipe between the gas machine and the agitator?

A. No, I have not observed that.

Q. Yes, that has not come within your notice?

A. No, sir; it is possible there has not been sufficient to notice it.

Q. Did you ever clean out the agitator yourself?

A. No, sir.

Q. Ever open that up when you were not running?

A. No, sir. I never opened up the agitator.

Q. It has never been opened up in your time then?

A. No, sir.

Q. Is that round? A. Yes, sir.

Q. And the bottom flat?

A. No, sir, the bottom is round too.

Q. The bottom is round too; what is it made of?

A. It is made of galvanized iron.

Q. The agitator is too? A. Yes, sir.

Q. And that is in such shape it stands up and down, does it, so that nothing can stick in it?

A. No, sir, it is a horizontal machine.

Q. Well, what I am trying to get at is this, in the ordinary operation could it be possible that a little flour, an ounce or a pound or a gallon might stay in there?

A. Yes, sir.

Q. For a while? A. Yes, sir.

Q. For a good while? A. Yes, sir.

Q. Now have you ever observed flour that you know had stayed in that tank for a few days while you were bleaching?

A. No, sir.

Q. Can you tell us whether or not that flour would become the same color practically a saffron color, the same color as this stuff you took out of the tank and the pipe?

Mr. Smith: I object to that as wholly speculative. The witness said he never observed, he never seen any of it.

The Court: Yes, he says he has not examined it.

Q. Where did the 10 per cent of flour that was not put in these sacks go, when it left the mill, what spout is it run into?

- A. It ran into the Lexington packer or the clear packer which we call our Lexington.
- 260 Q. Lexington packer or the clear packer?
- A. Yes, sir.
- Q. That did not pass through the agitator? A. No, sir.
- Q. That was not bleached? A. No, sir.
- Q. Now do you know yourself what bin that ran into?
- A. Yes, sir.
- Q. And you know it was the Lexington packer or what?
- A. Clear.
- Q. Yes, and with reference to the name, it is different kind of flour?
- A. Well, Lexington, we brand our clear flour Lexington.
- Q. Lexington or clear?
- A. Well, it is just branded Lexington.
- Q. It is not branded clear, branded unbleached?
- A. No, sir.

Counsel for claimant objects as immaterial and not therefore in this case.

At this point a recess was taken until 2 o'clock p. m.

Friday P. M., June 3, 1910.

Court met at Two o'clock P. M. and proceeded as follows:

Mr. Butler: I ask permission to ask Mr. Tucker a question or two, that I overlooked.

The Court: Yes. Do you want Mr. Elliott present, Mr. Smith.

Mr. Smith: He is here.

The Court: Oh, yes, Mr. Elliott is here. Very well.

Overton T. Tucker, recalled, was examined further, and testified as follows:

By Mr. Butler:

Q. What was the date of the milling and bleaching of the flour that was seized in this case?

261 A. I don't exactly understand.

Q. On what date was the flour milled and bleached—that is, the flour that was seized in this case, down at Castle?

A. On the night of the 31st of March.

The Court: This year?

A. Yes, sir.

By Mr. Butler:

Q. What was the average daily output of the mill per year?

A. I don't believe that I have the average daily output of the mill for a year.

Q. Could you give us within the limits?

A. Do you mean, running twenty-four hours?

Q. No, I mean how much flour did you make in the year, and that divided by the number of days you made it, which would give the average daily output?

A. 330 barrels, about.

The Court: Per day?

A. Yes, sir, per day,—twenty-four hours.

By Mr. Butler:

Q. What is the theoretical capacity of your mill?

A. Oh, about 350 barrels.

Q. Per day? A. Yes, sir.

Q. Do I understand you to say there is only one agitator there for the bleaching of flour?

A. Yes, sir, only one agitator for the patent.

The Court: Sir?

A. Only one agitator for patent flour.

By Mr. Butler:

Q. And you told me you didn't bleach the clear?

A. No, sir, we do not.

Q. No? Only bleach the patent? A. That is all.

Q. How many agitators do you have in the mill?

A. Two.

Q. Two agitators in the mill? A. Yes, sir.

Q. Both used for bleaching patent? A. No, sir.

Q. Did you bleach the clear? A. No, sir.

Q. What were they used for, at that time?

262 A. They weren't used at that time.

Mr. Lyons: I didn't catch the answer.

A. There was only one agitator in use. There was only one agitator in use for the purpose of bleaching.

By Mr. Butler:

Q. What was the other one used for?

A. The other agitator was put in there, when the machine was installed.

Q. What was it put in for?

A. It was put in there for the purpose of bleaching cut straights.

The Court: Bleaching what?

A. Cut straights, and I believe—I understand that before I came there, that they did bleach their clears, but we have never bleached any clears, since I have been there.

Q. What is a cut straight?

A. A cut straight is the clear, and a per cent of patent, turned in with the clear.

Q. What percentage of the whole flour is a cut straight?

A. About forty per cent.

Q. And that, would leave a sixty per cent patent?

A. Not necessarily.

Q. Yes,—the whole flour content is one hundred per cent?

A. Yes, sir.

Q. Then you divide that so as to make sixty per cent of it patent, we will say. That would leave forty per cent, and that you would call a "cut straight"? A. Yes, sir.

Q. When you make a short patent, like sixty per cent, you call the balance not a clear, but a cut straight?

Q. That isn't a short patent.

Q. Well, when you make it no longer than sixty, we will say?

A. That don't make any difference. It doesn't shorten that patent a particle.

Q. No? Well, see, if I understand this right.

A. Straight flour is all the flour in the wheat, is it?

A. Yes, sir.

Q. A patent is some of the flour in the wheat, is it?

A. Yes, sir.

263 Q. What is left, is a clear? A. Yes, sir.

Q. But now, a cut straight is after you have taken some patent off, and not all of it that is in the wheat? You have taken all the patent off?

A. I turn a part of it back into the clear.

Q. Do you take all of it back and turn it back in there?

A. Yes, regular separations are made, but a portion of it is turned back into the clear.

Q. What is a "first clear"?

A. A first clear is a baker's flour, or a flour that is termed a baker's flour. It is a regular clear flour.

Q. What per cent?

A. Oh, that is indefinite,—most any per cent.

Q. What is a second clear?

A. A second clear is the poorer qualities of the first clear—the quality that is not fit for a first clear, the way I understand it. I don't make a second clear, but I am simply giving you my understanding of a second clear.

Q. I see. Now how many bushels of wheat did you use to make a barrel of the flour that was seized?

A. I don't figure by the barrel.

Q. Well, one hundred pounds?

A. I would have to figure that.

Q. Well, one hundred pounds. How do you figure?

A. I figure the number of pounds of flour to the bushel of wheat.

Q. How many pounds to the bushel of wheat?

A. About forty-two pounds.

Q. About forty-two pounds?

The Court: Sixty pound bushel of wheat?

A. Well, fifty-nine pound bushel of wheat, That is allowing one pound for sweeping it.

By Mr. Butler:

Q. Forty-two pounds of flour, out of fifty-nine pounds of wheat? A. Yes, sir.

Q. And your statement was, that there was ninety per cent of the flour bleached? A. Yes, sir.

264 Q. And put into the bags which were seized?

A. Yes, sir.

Q. And ten per cent of the flour was—what you call it, something else—was a clear flour?

A. Yes, sir.

Q. And was not bleached? A. Yes, sir.

Q. And that was put into another sack, and branded something else? A. Correct.

Q. Now, I want to get the mechanical detail of the connection of the two agitators. By the way did you run all of your patents into the bleacher, at once?

A. Yes, sir.

Q. There were no separation of streams of patent?

A. No, sir.

Q. You didn't run some streams into one agitator, and some into another, and then bring them together?

A. Well, no.

Q. You understand what I mean?

A. Yes, sir, I understand what you mean.

Q. Yes?

A. That the streams all ran into one elevator, and that elevator carried it to the agitator?

Q. Yes?

A. And just one agitator?

Q. Now, you have two gas generators?

A. Yes, sir.

Q. And the pipes ran into a "T",—the pipes conducting the gas ran into a "T"? A. Yes, sir.

Q. And the "T" ran into the tank—they formed a "T"? A. Yes, sir.

Q. The "T" ran into the tank.

Q. Then, there was a pipe running out into the tank?

A. Yes.

Mr. Smith: By that, you mean the reservoir?

Mr. Butler: Yes. That is the galvanized iron tank, that you cleaned out? A. Yes.

Q. And then, from that tank, there was a pipe coming out of the other end, I suppose, to let the gas out of it?

A. Yes, the pipe comes out at the bottom of the tank.

265 Q. Now, that pipe separated some place, so that,—was that made in two branches, later on, so that one branch of it went into one agitator, and the other to another?

A. Yes, sir.

Q. And it had an arrangement so that you could turn it off of one agitator? A. Yes, sir.

Q. And turn it—

A. (Interrupting) On the other agitator.

Q. The other agitator? And you said that the night in question that clears were not put through that agitator?

A. No, I didn't say that. I said they were not bleached.

Q. Were they put through the agitator?

A. They were put through that clear agitator, yes, sir.

Mr. Smith: Not the same agitator.

Mr. Butler: No, I understand.

Q. So, both agitators were in use, that night?

A. Yes, sir, both agitators were in use.

Q. Both gas generators were in use? A. Yes, sir.

Q. And all the gas that was made, from both, was turned onto the flour that was seized? A. Yes, sir.

Q. And none of it was turned onto the other?

A. No, sir.

Q. Was there some mechanical reason, or some reason, Mr. Tucker, founded on convenience, why you should run this flour that you didn't bleach, through the bleaching agitator? What was it?

A. Well, it was just simply the way the flour is conducted.

Mr. Smith: Speak up a little louder.

A. The agitator is there for that purpose, at the same time acting as an agitator it conducts the flour to that bin.

Q. Yes, I know. It would run through there, whether the gas was coming in, or not? A. Yes, sir.

Q. But my idea was this: Can't you just turn the spouts around there? Isn't there some way to get around it, without going through? A. No, sir.

Q. Your mechanical situation is such that it has to run through the agitator? A. Yes, sir.

266 Q. Was the agitator running?

A. The agitator was running.

Q. Yes? So that that would not be a sign, if two of these Alsop Gas Generators were running, and flour coming into the agitator, and the agitator running—that wouldn't be a sign that it was bleached? A. No, sir.

Q. So, you may go and open that agitator and get no smell at all, of gas?

A. Yes, you could go and open that agitator, and get no smell of gas.

Q. How long have you been there at that mill?

A. Three years.

Q. And the clear always comes down through that same agitator? A. Yes, sir.

Q. And never was bleached? A. No, sir.

Q. You just kept running that agitator there, just to let the flour go by? A. Yes, sir.

Q. All that time? How big is that agitator?

[Q.] It is about half the size of the other agitator.

Q. And that would be about as big as a barrel, or hog-head?

A. That would be about fourteen inches in diameter, and about six or seven feet long.

Q. Yes? It would be a very easy matter to slip that out, and put a spout in its place, wouldn't it?

A. It would, if you never wanted to use it.

Q. Yes? That is what I say; and you had it there, running, all this time—two or three years,—(without wanting to use it?

A. Oh no, I never said that. I never made that statement.

Q. Well, your clear has been going down there for three years, hasn't it? A. Yes, sir.

Q. And you never bleached your clear in that three years?

A. No, sir.

Q. Did you ever run the patent through there?

A. No, sir.

Mr. Butler: I think that is all.

Cross Examination.

267 Questions by Mr. Smith:

Q. An agitator is a necessary part of the mill, irrespective of the question of bleaching, is it not?

A. No, I could not say it was, Mr. Smith.

Q. An agitator?

Mr. Butler: Why, no, I don't understand that.

By Mr. Smith:

Q. Describe to the jury what you mean by an agitator.

A. An agitator is the mechanical machine for spreading this flour, so that the treated air can have an effect on each particle of flour the same. It is simply an agitator for stirring up the flour, as it goes into the bin, and spreading it, that each particle of it may come in contact with this treated air.

Q. I see. That is all.

By Mr. Butler:

Q. Then an agitator would be, in the Alsop process, around at the end of the mill?

A. Not entirely like that. I have seen agitators that were put in, practically for the simple purpose of drying and removing a certain amount of the moisture.

Q. Yes, to dry out the flour? A. Yes, sir.

Q. But this is to get this gas, that you call the treated air—this gas that you smell,—mixed in with the flour? That is what it is for, isn't it?

A. Yes, sir, that is what it is for.

Q. So that it will come in contact with each little yellow portion in the oil, or fat of the flour, and make it white? That is the purpose of the agitator, isn't it?

A. Yes, sir, that is the purpose of the agitator.

The Court: Are you through with this witness, gentlemen?

Mr. Smith: Yes.

The Court: I guess that is all, Mr. Tucker.

Mr. Tucker: Am I —

268 The Court: Well, that is for counsel to say: Mr. Tucker wants to know if you are through with him, on both sides?

Mr. Smith: We expect to recall Mr. Tucker, when it comes to our case. It is a matter for the government to say whether they want to retain him here, or not.

The Court: You are in the hands of your own counsel.

Mr. Butler: So far as I know, we will not, but I would like to have Mr. Tucker say that if we wire him, he will come back.

Mr. Tucker: Yes, sir.

Mr. Butler: He said he would prefer to do that.

The Court: If you receive a call from Mr. Butler, you will please come back. Otherwise, you are subject to the orders of Mr. Smith and Mr. Elliott.

Mr. Lyons: Just go into my office, and the lady clerk will give you your discharge.

Witness Excused:

Daniel M. Walsh, called as a witness on behalf of the Government, being first duly sworn, was examined by Mr. Butler, and testified as follows:

Q. Mr. Walsh, you are employed by the Government?

A. Yes, sir.

Q. What is your official capacity?

A. Food and Drug Inspector, in the Bureau of Chemistry, United States Department of Agriculture.

Q. Bureau of Chemistry, Department of Agriculture?

A. Yes, sir.

Q. Did you see the flour which has been seized in this case, at all, about the time of its seizure, at Castle, in this State?

269 A. Yes, sir.

The Court: Is that Castle, or Greencastle?

Mr. Butler: The Post Office is called Greencastle, and I think the railroad station is called Castle.

The Witness: Yes, sir.

The Court: Very well, we will know what is meant, then. I notice that confusion of names, and I didn't understand it.

Mr. Butler: It has been so explained to me.

The Court: So, when you said "Castle", or "Greencastle" you mean the same place—where this gentleman lives, who testified here, as a grocer.

By Mr. Butler:

Q. Did you take any of this flour, for examination, and send it to any of the laboratories of the Government?

A. Yes, sir.

Q. When did you take it?

A. I will have to consult my record.

Q. You made a note of it, at the time, did you?

A. Yes, sir. I took it April 11, 1910.

Q. At Castle? A. At Castle, Missouri.

Q. How much did you take? A. I took three sacks.

Q. And what did you do with them?

A. I sent two sacks to the Chicago Laboratory.

Q. That is in charge of whom?

A. Doctor A. L. Winton, and one sack to the Saint Paul Laboratory, in charge of Doctor A. S. Mitchell.

Q. Did you mark and seal the sacks so as to preserve the chain of identification? A. Yes, sir.

Q. Have you seen the sacks here, since you came to Court?

A. Yes, sir, both of them.

The Court: Both, or three?

A. Both sacks. Both samples. There was two samples. There were two sacks in the sample sent to Chicago and one sack in the sample sent to Saint Paul. I have seen two sacks from the Chicago shipment, and one from the Saint Paul shipment.

270 Q. Are they in the Court, Mr. Walsh?

A. Yes, sir. Right by the gate, there.

(Sacks produced)

Q. These sacks were tied up, as is usual, when you shipped them? A. Yes, sir.

Q. How did you ship them—by what carrier?

A. Shipped them by Adams Express.

Q. How did you mark them?

A. I marked the samples sent to the Chicago Laboratory, "I. S. 12351 -B", and the sample sent to the Saint Paul Laboratory, "I. S. 12352 -B".

Q. Will you come down here, and see if this sack, I have, now, is the same sack, and which was full, when you sent it? It is partly full.

A. Let me have the box, please. This is the sample that I sent to the Chicago Laboratory.

Q. That is one of the sacks you sent to the Chicago Laboratory? A. Yes, sir.

Mr. Butler: Now, we will have this one marked "Government Exhibit 8".

Q. Now, look at this other sack, and see if that—

The Court: Well, just wait, Mr. Butler. They have got some tags. This one should be marked, now.

(The sack of flour identified by the witness is here marked "Government Exhibit 8")

Q. I show you another sack?

A. This is the sack that I sent to the Saint Paul Laboratory.

Mr. Butler: We will have that marked "9".

(Which is accordingly done)

Mr. Butler: There is no dispute about their all being labeled alike, is there?

Mr. Smith: They are, so far as I know.

271 Mr. Butler: These exhibits will be offered in evidence and attention is called to the label upon them. It is admitted—it was pleaded in the libel that each sack was labeled as these are, except in this way. "This flour is Made of First Quality Hard Wheat", is the way it reads on the sack. The libel said, "Finest Hard Wheat" and the answer said "First", so, I think it may be taken as the fact, that the answer is right in that respect.

The Court: You may, by interlineation, of your amended libel, correct it, if you care to.

Mr. Butler: Well, it may be so considered. I think that is all, Mr. Walsh.

Cross-Examination.

Questions by Mr. Smith:

Q. One question, Mr. Walsh. You didn't open the sack, at Castle? A. No, sir.

Q. And when did you next see them?

A. I next saw them in the court room here.

The Court: A day or two ago?

A. Yesterday.

By Mr. Smith:

Q. So, all you are able to do, is to identify certain markings that you made? A. Yes, sir.

Q. At that time? A. Yes, sir.

Q. You have no knowledge of the contents, at any time?

A. No, sir.

Mr. Smith: That is all.

Mr. Lyons: That is all.

Mr. Smith: No, there is one question I want to ask, please.

Q. Where was this flour, when you seized it at Castle?

A. It was in the dealer's warehouse.

272 The Court: This gentleman who testified—what is his name?

The Witness: B. O. Terry.

By Mr. Smith:

Q. Mr. B. O. Terry's warehouse? A. Yes sir.

Q. Where was his warehouse?

A. It was in the rear of his store.

Q. How far from the depot?

A. Oh, I should say a quarter of a mile.

Q. Were any of the sacks in his store proper?

A. I think not.

Q. Well, are you clear about that?

A. Yes, I am very clear about it.

Q. All of it piled together, was it? A. Yes, sir.

Q. The warehouse—where is that, with reference to his store—grocery store?

A. Well, it is practically the same building. It is—the front part of the building is a retail store, and the rear part is a warehouse. This flour was up-stairs, in the rear part.

Q. And the rear part is where he stored articles of merchandise, that was there for sale?

A. There was practically nothing stored in the upper part, except this flour.

Q. That is, in the up-stairs? A. Yes, sir.

Q. But, in the rear part, that was used as a storage room, in connection with the grocery store? A. Yes, sir.

Q. Well, you say there was "practically" nothing else stored up-stairs, except this. Do we understand that there were some other articles of merchandise stored up there?

A. I believe there were some boxes, up there, something of that kind.

Q. I see. Do you know how many sacks you seized, there, at that time?

A. Yes, five hundred ninety-seven. I am not sure about that.

Q. You are not clear, as to the exact count?

A. No, sir.

Q. Did you see Mr. Terry sell any of them, while you were there? A. Selling any of the flour?

Mr. Butler: We will object to that, as immaterial, and
273 not cross-examination.

The Court: If it has reference to any question of identity, it would be proper. I don't know what the object is. You may answer.

A. No, sir, I did not.

Mr. Smith: I guess that is all.

Witness Excused.

Dr. Andrew L. Winton, called as a witness on behalf of the government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live, Mr. Winton? A. Chicago.

Q. What is your occupation?

A. Chemist, chief of the government's food laboratory at Chicago.

Q. Give to the jury a statement of your education and professional experience, or history.

A. I was educated at Yale University.

By the Court:

Q. Yale?

A. Yale, where I received the degree of Bachelor of Philosophy, and later, of Doctor of Philosophy. For twenty-three years I was chemist at the Connecticut Agricultural Experiment Station. During eighteen years of that time, I was in charge of the analytical laboratory. Since the spring of 1907, I have been in my present position. I have written various articles on the analysis of agricultural products, and foods, which have been published in journals and state reports. I also was one of the authors of the compilation of analyses of American feeding stuffs, including food for man, as well as feeds for cattle, which was published by the Department of Agriculture about twenty years ago. Also author of a book on the microscopy of foods and translator of a work on the microscopy of technical products. Both of these books deal with cereal products, and flour, touching also on the chemical composition of flour. More recently, I took part in the revision of Leach's "Food Inspection and Analysis".

By the Court:

Q. What kind of food inspection?

A. Leach's. Leach's—that is the author. "Food Inspection and Analysis", which is a work dealing with the composition and analysis of food products.

Q. Exhibit 8 is called to the attention of the witness, same being one of the sacks shipped by Walsh to the Chicago laboratory. When did you receive that sack, Doctor?

A. April 12th, of the present year.

Q. Was it full of flour, at that time? A. It was.

Q. It has been in your custody and control since that time?

A. Yes, sir.

Q. There is still some flour in it—perhaps less than half full—do you know whether or not this is a part of the same flour, originally contained in the sack, when it reached you, that is now in it? A. It is.

Q. You received two sacks, I believe, all together?

A. Yes, sir.

Q. The other one you shipped to Washington?

A. Shipped to the Bureau of Chemistry, at Washington.

Q. They were both contained in a wooden box, which has been moved around here, when they arrived at the Chicago laboratory? A. Yes, sir.

Q. Did you make an analysis of the flour contained in this sack, Exhibit 8? A. I did.

Q. When did you make that analysis?

A. On the day the flour was received from the express company.

Q. What was the purpose of the analysis, or for what
275 determinations was it made?

A. The purpose was to learn whether or not the flour had been bleached, and also what was the grade of the flour.

Q. Now, state what you found as the result as the result of your analysis—that is, what it contained.

A. It contained nitrous acid, either free or combined to form nitrites, 1.80, calculated as nitrogen, per kilogram of flour. 1.80 milligrams, calculated as nitrogen, per kilogram of flour, or, in other words, 1.8 parts per million.

Q. What did you call it? A. Nitrous-nitrogen.

Q. Nitrous-nitrogen? Is that nitrite reacting material, or the equivalent?

A. It is, calculated to the form of nitrogen.

Q. What else?

A. It contained .57 per cent of ash, and acidity, calculated as lactic acid, .113 per cent.

Q. That is, one hundred thirteen thousandths?

A. One hundred thirteen thousandths per cent.

Q. That is, of one per cent?

A. Of one per cent. And it had a gasoline number, so-called, of .66. This gasoline number is a measure of the color of the flour, extracted by gasoline.

Q. Anything else? You have given us the nitrites, and the ash, and the acid, and the gasoline number.

A. In addition, determinations were made of the gluten.

Q. What did you find?

A. And baking tests were also made.

Q. Now, we will go back to the chemical analysis. It is admitted in this case that this flour was bleached by the Alsop process. Are you familiar with that process? A. I am.

Q. Have you given special attention to it? Give, in a general way, what you know about it—that is, what opportunity you have had to become familiar with it.

A. I have visited mills where this process was in operation,

and have also examined in the laboratory flour bleached by the Alsop process.

276 Q. About how many mills have you examined, where the Alsop bleaching process was at work?

A. Quite a number, possibly twenty mills.

Q. On such visits, did you ever ascertain whether the nitrogen peroxide gas, generated by the flaming arc, as described in the patent in evidence, here, could be seen in the generator, or smelled in the agitator?

A. It would be a difficult matter to see it, in the mills I visited, for the reason that it was enclosed within either the generator or the agitator, and, although the generator had a glass in front, this was usually dirty, and the apparatus was in a dark place, and, opening the agitator, the particles of flour were in the air, and it was, therefore, impracticable to make an observation.

Q. That is, the flour was in a state of agitation?

A. In a state of agitation, and, even if the gas had a color, quite distinct, it would not have been possible for me to have seen it, under these conditions. The odor, however, was quite apparent, and frequently, from leaks in the agitator, or, on opening the door in the agitator, I was able to detect the nauseating odor of nitrogen peroxide.

Q. Are you familiar with the substance known as nitrogen peroxide? A. I am.

Q. And is that substance employed in the Alsop process?

A. It is. It is the substance formed in the agitator, and, mixed with air, agitated with the flour in the agitator.

Q. Describe the gas as to its properties.

A. Gas, at ordinary temperatures, is brownish in color, heavier than air, and can, therefore, be poured like liquids. It has a strong, suffocating odor. If inhaled in its pure condition, it causes coughing and serious disturbance. It has two formulae, according to the temperature, one NO_2 , or higher temperatures, the other N_2O_4 or lower temperatures. The quantities of these two forms vary in temperature between the extremes, variously, according to whether the temperature is high or low.

277 Q. Upon the application of this Alsop bleaching process of flour, such as was contained in this seizure, a part of which you have seen and examined, you may tell us whether or not, in your opinion, there is, by such process, any substance added to or mixed with the flour.

Mr. Smith: Wait, your Honor, I object to that as incompetent, irrelevant, and immaterial, being the identical question—the one identical question that this jury will be called upon to determine, not a matter of expert testimony. I don't

object to him asking just what takes place, but this is the ultimate question the jury is going to pass on.

The Court: Will you read the question?

(Last question read)

The Court: You may answer.

Objections overruled, claimant excepts.

A. The nitrous and nitric acids are added to the flour.

Q. How does that come about. Tell us the scientific detail of that.

A. Nitrogen peroxide, coming in contact with the moisture, forms these two acids, by absorption of the water.

Q. That is, the moisture content of the wheat, or of the wheat flour, you assume to have existed in this flour at the time it was milled?

A. Flour always contains somewhere from ten to fifteen per cent of moisture. There is also usually—always a certain amount of moisture in the air. So that nitrogen peroxide, coming in contact with moisture, would form these acids.

Q. Would these acids remain, as such—that is, nitrous acid, and nitric acid,—or, would there be a change, immediately, or after a while, so that they would take on other forms?

A. It is possible for these acids to combine with bases, to form respective nitrites, and nitrates, from nitrous acid and nitric acid. It is my opinion, however, that, in the
278 flour, the nitrous and nitric acids largely remain in the form of the free acids.

Q. Now, your analysis discloses that you found 1.8 parts nitrous-nitrogen per million, in this flour. What, in your opinion, was the source of that substance?

A. In my opinion that substance was formed from nitrogen peroxide.

Q. At the time of the bleaching?

A. At the time of bleaching.

Q. Now, with respect to ash. You made an ash determination, .57 per cent of one per cent. What is meant by that?

A. It means that, in one hundred parts of the flour, there are fifty-seven hundredths of one per cent of mineral substance—substance which remains on burning, just as wood ashes are obtained from wood on burning. This mineral substance consists of phosphates—consists largely of phosphates of lime and potash, also contains smaller amounts of magnesia, and a little sulphur. A small amount of iron.

Q. What is the significance of ash, determined in this case? What does that mean? What is to be drawn from it?

A. The significance is, that it shows us something as to the grade of flour.

Q. Explain how that is true—how it sheds any light upon that question.

A. The highest grade of flour, namely, the patent, contains a relatively low percentage of ash. A straight flour contains a somewhat larger percentage, and clear flours still larger percentages. You go right on through. The red-dog contains more than the clear, and the bran, more than the red-dog.

Q. In the case of patent flours, what is the percentage of ash?

Mr. Smith: Pardon me. I object to that as incompetent, irrelevant and immaterial, the witness not having shown that there is any standard, nor shown his competency to testify what makes a standard of patent flour, and what does not.

Mr. Butler: I will ask him this.

Q. Have you, yourself, become familiar with the term "patent flour", as that term is used in the flour trade?

A. I have.

Q. And have you, yourself, made examinations for the determination of the ash content of patent flours?

A. Yes, sir, a great many patent flours.

Q. Over what period of time? A. Some years.

Q. The patent flours produced in what territory?

A. All over the country.

Q. Now, what is the ash content of patent flours, or the range of content?

Mr. Smith: We object to that as incompetent, irrelevant and immaterial, and not being shown that there is any standard by which to measure it, no proper foundation having been laid.

The Court: You may answer it. Objection overruled.

A. The patent flour should not contain forty-two or forty-three hundredths of one per cent of ash.

Q. My question was, how much—in your experience, do they contain, naming the minimum and maximum?

A. They never contained more than forty-two or forty-three one-hundredths of one per cent, and the minimum is not so clearly defined. It varies with the skill of the miller. Might run down to .3 per cent, or even lower.

By the Court:

Q. You mean, down to thirty?

A. Yes, down to thirty hundredths.

By Mr. Butler:

Q. The range should be, then, from thirty to forty what?

A. Forty-two or 'three.

Q. Will you explain to us, as a practical matter, how that comes about, that there is less ash contained in the patent flours, than there is in the whole flour content?

A. The amount of ash, or mineral matter, in the wheat
280 kernel, diminishes from without, inward, being highest in the brans, and lowest in the middle portion, or starchy portion of the kernel. Now, it is the province of the miller to secure, in the form of white flour, as much as possible of the valuable inner portion of the grain, and to secure that as free as possible from contamination with the bran coats, and the dirt, and other substances adhering to the grain. When the milling process is performed, there is produced a patent, the amount of ash, would not exceed that stated. The lower the grade of the flour, the higher the percentage of the ash. Bran contains several per cent of ash.

Q. Now, as to the coloring matter, in the flour content of the wheat. Where is that the heaviest, if there is any difference?

A. At the outer side.

Q. Or, as you approach the middle?

A. The coloring matter of the grain exists in several forms. The yellow colored, or slightly orange-yellow color of the flour is associated with the fat, so, if you extract from the flour all the fat, and dry the flour, you will get a powder almost as white as starch, providing of course, the flour is a patent, to begin with. The bran coats contain coloring matter of a more insoluble—more refractory form. There is one layer of the wheat kernel—two layers, I might say,—the third, or fourth, or fifth,—two layers of the grain, which are very thin, but are nevertheless, of an intense brownish color. These two thin layers give to bran its brownish color, as distinguished from the creamy yellow color of a good patent flour. Now if the flour is so made as to introduce into it more or less of these brown coats, we would get that brownish color, in the form of minute specks of bran, more or less apparent, according to the fineness of the grinding, so, in such a flour, we would have two colors—first, the yellow, or orange-yellow color, associated
281 with the fat, and, second, the brownish color of bran particles. In addition, there might be dirt, which would give the flour color, and there might be weed seed, such as cockle or wild buckwheat, which would be evident cause of their dark shells, or skins; but, the color of flour that is altered by bleaching, is the yellow color associated with the fat, and which is soluble in ether and in gasoline.

Q. What portions of the wheat are used for patent flour?

A. The inner portions of the kernel—the so-called floury part of the grain.

Q. Having the least ash,—the least ash, and the least yellow?

A. Having the least ash.

Q. And the least coloring matter contained in any of the layers?

A. Least coloring matter. Not always the lowest color, but the lowest coloring matter, as regards contamination, with outer layers.

Q. Well, where is the strongest color? The oil, I understand, is yellowish. Now, is that concentrated where the patent flour is made, or is it out at the edge, where the clear is made?

A. That oil is first in the germ, but that is eliminated in manufacture. Then, there is oil in with the starch, in the floury part of the grain, and then there is more or less oil in the bran coats.

Q. Is it distributed uniformly through the body of the wheat, or is it lowest at the center, and greater at the outside, or vice versa, or how is that?

A. It is a curious fact, that, although there is more oil in the germ, and more oil in the outer layers, it is not necessarily a darker colored oil. That is to say, if you were to extract the oil from the germ, and then from the inner part of the grain, it is not necessarily true that would be a deeper color of yellow than that from the floury part. There is more fat in the outer layers, and that larger per centage of fat, or oil, even if that oil were no more yellow than that inside, or, were even less yellow, would give it the strong color.

282 Q. What effect did the bleaching by the Alsop process have upon this flour that was seized, in your opinion, as respects the color?

A. It lightened the color of the oil. That is to say, the coloring matter that is associated with the oil. The coloring matter and oil are not the same thing. The oil strictly speaking, is colorless, but the color, associating with it, gives it color. That coloring matter was lightened.

Q. What determination, in the analysis which you have given us, bears upon that point?

A. The gasoline number.

Q. Explain that to the jury, as fully and as briefly as possible?

A. I will say that it is an exceedingly difficult matter of expressing the color of flour in figures. The miller "slicks up", so to speak, his flour, on a glass plate, or on a board, along-side of a flour which he calls his standard. That is to say, he smooths off a portion of the flour, on this board, and then a

portion of the standard. Then he cuts them off square, removes that in between, and brings these two flat portions of flour together, and, finally, with one stroke of his flour slicker, squares his flour spacher, which every miller owns, with which he rubs it off, so that both are smooth. He does it so carefully, that the two squares, rectangles of flour do not mix, and there is a line between them. In that way he can see whether the flour in question is darker or lighter than his standard. Now, that is merely comparative. He has got no definite measure of the flour in figures. He doesn't call it "Number 8, 10, or 15," according to the color. That is an exceedingly difficult thing to do. There is an instrument, however, whereby this can be done. It is known as the "Lovebond Tintometer". There, you spread the flour out, flat, put it in where it is lighted, and look at it through a tube. You will notice, in that case, the slightest, yellow—the color of the flour. Now in order to measure that color, on the otherside, the operator introduces little colored glasses—yellow, or red, as the case may be—until he matches the color on the one side, formed by this glass with the flour,

and, then looking at his figures on the glass slides, he determines his color. I will say that that process is exceedingly difficult, and requires a trained eye, and, furthermore, it requires a good light. In the city of Chicago, where I am obliged to work, we don't see the sun all the time. The air is filled with smoke, and we found it impracticable to use this test. Others have had the same experience; so, I have devised this method, known as the "gasoline number", to measure the yellow color of the flour. Now, the process consists in weighing out a certain quantity of the flour. It is a little over three ounces—100 grams—in a bottle, just like this (referring to bottle)—empty bottle, and then introduce a measured quantity of ordinary automobile gasoline, and shake the bottle for five minutes. On allowing the bottle to stand over night, it will be seen that the gasoline which comes up to the surface takes on a yellowish cast. Now, if the flour is unbleached, that yellow will be very decided. If, however, the flour is bleached, it will vary in color, often being entirely colorless. Now in order to get that color in tangible terms and figures, this gasoline solution is removed, filtered, to make it entirely clear, and then it is compared with colors of known flour—standard colors. I use a solution of a chemical that gives a yellow color, and I compare the sample I am analyzing, with this yellow solution, variously diluted, until the two colors match, and, in that way, I can express the gasoline number,—this color of the flour, in definite figures. For example,—if I may give illustrations?

Q. Yes.

A. Some Nebraska flour which I have examined, has a color value of 2.6, and some soft wheat flours—

Q. (Interrupting) That is, in the case of bleached, or unbleached Nebraska flour?

A. Unbleached Nebraska flour. And some unbleached, soft wheat flours which I have examined, flours which are used for pastry, lacking the strength of the patents, and also sought after because they are white.—I have had figures as low as 1.4—1.2, possibly.

Q. And this? you make about two-thirds of one point—.66?

284 A. I make this about two-thirds of one point.

Q. Yes.

A. I should add, if it is desired to give an accurate description of this method, that, before filtering, after standing over night, the bottle is shaken once again, until the flour is all commingled with the gasoline, and before the filtering. The reason for that is, that the shaking for five minutes, the first day, doesn't remove all the yellow color, but, on standing over night, the layers of gasoline in contact with the flour take up a little more, and this final shaking is made, just to give the maximum color, before the filtration.

Q. Now, you made the determination of acidity, computed as lactic acid? A. As lactic acid.

Q. And that was about 1-10th of 1 per cent, being .113?

A. Yes.

Q. Has bleaching any effect upon acidity, determined as lactic acid?

A. Bleaching increases the acidity of flour, but it doesn't increase it in the form of lactic acid, or organic acid.

Q. It doesn't change it, when computed as organic acid?

A. When computed as organic acid, it doesn't change it.

Q. Now, with respect to this particular determination that you made, of this particular flour. You have given us the opinion that the nitrous-nitrogen, or nitrite reacting material, was added by the bleaching. Now, was the ash content affected by the bleaching, at all? A. No; not at all.

Q. The color is? A. The color is.

Q. And the inorganic acidity, or metallic acids, is increased?

A. The mineral acids, nitrous and nitric acids.

Q. That would be determined in your first point? Is it included in the one, indexed as nitrite, or nitrite reacting material? A. In the free nitrous and nitric acids.

Q. Now, in your study of flour bleaching, have you made any investigations to determine whether or not these nitrites, or nitrous-nitrogen, or nitrous acid, are normally in
285 flour? That is, I mean, in flour that is not bleached,—whether they are natural to the flour?

A. I have examined a great number of samples of flour ground from wheat in the laboratory, protected from any possible contamination with laboratory fumes. In no case have I found such a flour to contain nitrites, or nitrous acid. Something in the neighborhood of 300 such samples of flour, ground in the laboratory, representing wheat from all over the country, have been examined. The wheat was of all grades and kinds, some of it in a deteriorated condition, but, in no case, was any nitrous acid found in this flour. From this, and other experience, I am forced to the conclusion that nitrous acid and nitrites are not normal constituents of flour.

Q. Now, as to the amount of added substances or material, as the result of this gas, mixing with the flour, have you made any studies for the purpose of determining whether or not the amount of added substances bears any relation to the amount of the nitrogen peroxide used for bleaching?

A. Yes. I have made experiments, using—bleaching, myself,—and using different quantities of nitrogen peroxide gas, and have examined and made extensive analyses of the flours so bleached, determining the amount of nitrous-nitrogen, and other constituents. The amount of nitrous acid steadily increased with the amount of bleaching gas used.

Q. That is, the amount of this added nitrous substance increases with the amount of bleaching medium employed?

A. Yes, sir.

Q. Now, with respect to the amount recoverable after bleaching by the methods you employed, to ascertain that there was 1.8 parts per million, here,—does that remain the same from the time, or does lapse of time, after bleaching, affect that?

A. It gradually disappears, on long standing. The nitrous acid goes into some other form. The evidence is, it goes into some other form, and remains in the flour, so that tests made a month after bleaching will show a somewhat lower amount of nitrous-nitrogen, or nitrites, than that obtained immediately after bleaching, and so on. If the flour were kept long enough, under certain conditions, it might disappear entirely. This does not mean, however, that the nitrite disappears before the flour gets into commerce. It is a slow process, whereby the amount diminishes a little each month.

Q. Now as to the effect of bleaching flour by this process, upon the quality of the flour. Have you made any studies in that regard and, if so, what are your conclusions?

A. I have made extensive investigations, and found that bleaching injured the quality of the flour.

Q. In what respects?

A. Well, bleaching introduces nitrous and nitric acids into the flour, and, consequently, increases the acidity of the flour.

Q. That is, the metallic acidity? Is that what you mean, or the mineral acidity? A. The mineral acidity.

Q. The mineral?

A. Well, it increases the total acidity.

Q. Yes? Next?

A. Next, the constitution of the fat is altered, by bleaching, and, at the same time, the flavor of the fat, and the color associated with the fat, are altered, the flavor being deteriorated, and the color made lighter.

Q. Next, if any?

A. The gluten is also altered in its physical characters, and also diminished in amount, by bleaching. The bread made from bleached flour is inferior in flavor and odor, to unbleached flour.

Q. Yes? Now, have you compared the changes effected by the bleaching of flour with this nitrogen peroxide gas, as employed by the Alsop process, as it was in this case, with the changes wrought by natural aging and conditioning of the flour? A. I have.

Q. Are they the same, or different, and, if different, in what respects?

A. They are similar, as regards the effect on the color, but they are different in several respects. The first, aging does not introduce nitrous acid; second aging improves the gluten, instead injuring its physical characters.

287 Q. Yes?

A. Aging of a sound flour improves its flavor, if the aging isn't carried too far, whereas, bleaching deteriorates the flavor.

Q. Yes?

A. Now, pardon me,—natural aging also affects the water content of the flour, as a rule.

Q. In what way—increase, or diminish it?

A. The flour after bleaching, being usually drier than the original flour, although, if it is aged in a moist climate, it may often take on more moisture, but in any case, the flour would take on a moisture content, corresponding to the moisture of the air in the region where it is aged.

Q. Now, my attention was drawn away for a minute,—natural aging, under normal conditions, increases, or diminishes the water content?

A. That depends upon the climate, whether it is wet or dry, but, ordinarily, there is a loss of moisture.

Q. After the bleaching? A. The bleaching.

Q. Yes? Now, that matter is spoken of in this patent, and the result given there is: "In the untreated flours, showed the flour constituents in the proportions named, water, 9.84"—that is, out of 100", and, after bleaching, water, 10.13, show-

ing an increase of about 30%, or something like that—.3 of 1 per cent. Now, have you made any studies to ascertain whether or not the bleaching by the Alsop process, and by this nitrogen peroxide gas, and atmosphere, affects the water content, and, if so, how does it increase it, or diminish it, or leave it the same?

A. I have examined flour, bleached and unbleached, and have been unable to find any material change in the moisture content, the same flour being examined in both cases.

Q. And different degrees of bleaching applied?

A. Yes, bleaching to different extents.

Q. Yes, that's what I mean—more peroxide of nitrogen used, beginning with a little, and going on up to a large quantity?

A. I found no difference—no appreciable difference in the moisture content, in flours bleached in the laboratory, 288 using peroxide, and also in flours collected from mills—no greater difference than what could be ascribed to the unavoidable errors of experiment and analysis.

Q. You spoke of its effect upon gluten, I think,—the bleaching—as diminishing it. Natural aging,—does that have any effect upon the quantity of the gluten?

A. It does, as a rule.

Q. The natural aging acts upon the quantity of the gluten? I am speaking, first, of the quantity.

A. Pardon me. The bleaching affects the percentage of gluten.

Q. You said it had an effect? A. It does.

Q. Slightly diminishing, as I noted it. Now, what is the truth with respect to natural aging?

A. Natural aging might, also, produce a lower amount of the gluten, especially if the flour were aged in improper conditions.

Q. Well, is there any rule about it? You say it might.

A. I think the tendency is in that direction, in natural aging.

Q. Yes?

A. But there is this difference, that the gluten improves in its physical characters, on aging, whereas, on bleaching, it deteriorates.

Q. Yes?

The Court: I think, Mr. Butler, we will take the usual mid-session recess—a five minute recess.

(Recess taken as ordered.)

The Court: Call the jury, Mr. Bailiff.

(Jury called to their seats in the jury box.)

The Court: The witness may resume the witness chair, please,—Doctor Winton.

Andrew L. Winton, resuming the witness chair, was examined and testified further as follows:

289 By Mr. Butler:

Q. Now, Doctor Winton, is there any difference, at all, as respects the effect upon flour, between the bleaching by the Alsop process, and bleaching in the laboratory, by means of this nitrogen peroxide gas and atmospheric air?

A. No, sir; provided the same amount of nitrogen peroxide is used.

Q. Well, that is what I meant—with a like degree of bleaching. Now, as to the effect upon the appearance of the flour—I mean, of one kind of flour,—we will say flour from a new wheat,—as compared with flour made from that same wheat, if you will, having been aged and [condition], and new flour; whether made from new wheat or old wheat, as compared with old flour; patent flour as compared with straight, and so on—what effect does the bleaching by the Alsop process, such as was practiced upon this flour that has been seized, have, in those respects?

A. Bleaching makes a new flour or a flour from new wheat, which is naturally more yellow than an older flour, appear lighter, and, in that respect, causes, the flour to simulate or appear to be older, or, from older wheat; in other words, it leads the purchaser of the flour to believe—

Mr. Scarritt: Wait a minute; if your Honor please, I object to that.

By Mr. Butler:

Q. Just give the appearance.

Mr. Butler: I didn't intend to call for that, of course, Judge, because the purchaser,—

Mr. Scarritt: Might have a different idea.

Mr. Butler: Yes—be wise to it,—and he might not. Can't tell anything about it.

Q. Now, as respects,—take, for example, the situation as would be illustrated by the testimony of Mr. Tucker, here,—the bleaching of a straight flour, or, as he called it, a “cut straight” flour, being 40 per cent of the flour content, after the 60 per cent patent was taken out, what would be
290 the effect upon bleaching that straight, as compared with the appearance of a patent flour?

By Mr. Scarritt: What do you mean? You mean the effect in appearance?

Mr. Butler: Yes, purely in appearance, now.

Mr. Scarritt: You are not calling for a conclusion?

Mr. Butler: No,—purely in appearance.

A. It would make it lighter in color.

Q. Well, I know, but as compared—more like the patent flour, or more unlike that,—is what I am trying to get at.

A. It would make it resemble the patent, in color.

Q. Now, respecting the quality of flour which is fresh, newly milled; How does that compare with the quality of the same flour if aged? A. It improves, on aging.

Q. Yes? Then, it is inferior when it is fresh, is it?

A. It is inferior when fresh.

Q. Does the color change, when aging, too?

A. The color changes very slowly, on aging.

Q. In what way does it change? A. It becomes lighter.

Q. It becomes lighter? Now, in respect to change of color wrought by time, as compared with change of color wrought by the Alsop bleaching process, have you made any comparisons, so you can give us any light upon that subject?

A. I have made an extensive series of experiments, bearing upon that point. These experiments are not yet finished, but they have been conducted for ten weeks. I obtained, through our regular, official inspectors, samples of patent and clear flours, each from the same milling, and representing the products of 15 mills in different sections of the country, using wheat from different sections of the country. These flours were bleached. Half of each sample was bleached, and the other half was left in its original condition.

Mr. Scarritt: You mean in the laboratory, Doctor?

A. In the laboratory.

By Mr. Butler:

291 Q. That is to say,—let's see that we all understand it. Your inspectors were directed to go out into the country, and did go out, so far as you know, and send you some flour, some patent, unbleached, and some clear, unbleached? Is that right? A. Yes, sir.

Q. And then you divided the samples?

A. Divided in each case the same.

Q. One you bleached in the laboratory, and the other you ordered to remain and age, naturally? Is that it?

A. That is it. In other words—

Q. (Interrupting) And then you compared the color of the flour of each, from time to time? Is that it?

A. That is it.

Q. Now, give us the result.

A. Now, perhaps, to make it clearer, the products of 15 mills were examined; that made 30,—one of patent and one of clear, from each mill; each of these was bleached, in part—half of each was bleached, so, that doubled, again, to four samples, making 60, in all. The quantity of gas employed was 20 cubic centimeters per kilogram of flour. It happened,—it was by chance,—that the amount of nitrites thus introduced, was practically the same as in this particular flour seized.

Q. In this case?

A. In this case. I will say that the average amount of nitrous acid, in the new flour examined the day after bleaching, was 2.19 parts per million, whereas, in this seizure, it was 1.8, but the seizure sample was not examined until some days after the bleaching; furthermore, the amount introduced in these flours was not always the same. The figure I just gave, that I gave for an average of the flour bleached in the laboratory, was for the patent flour. The clear was an average amount of 2.08,—somewhat less. The color of the flour—the “gasoline number”, as we call it—was determined, of all of this, when fresh; then, again, 5 weeks after; again, 10 weeks after, and we hope to continue the experiment.

Q. Yes?

A. Giving only averages, the loss in gasoline number, 292 during 10 weeks, was .44; the loss of bleaching, giving only the average—and these are for the patents—was .55.

In other words the average loss on bleaching patents, as determined after ten weeks,—the average loss on bleaching 15 patents, making the test the next day, was .55, whereas the—if I may be allowed to repeat—the average gasoline number of the bleached flour examined, was, after bleaching—the day after bleaching,—.55, whereas the average gasoline number of the unbleached flour, after aging for ten weeks, was 1.58—in other words, about three times that of the flour bleached. The loss in color, on bleaching, standing over night, was three times, as great as on aging for ten weeks.

Q. That is, the patent, or the—

A. (Interrupting) That is the patent flours.

Q. Now, the other.

A. The clear flour, unbleached, had a gasoline number of 2.10, fresh.

Q. That is the average?

A. The average, and of 1.75, after aging 10 weeks; total amount of loss, .35. The bleached flour, examined the day

after bleaching, had a gasoline number of .61. Here again, the loss on bleaching, examined the day after bleaching, was approximately three times; the color value of the unbleached flour, after aging 10 weeks, was three times as great as that of the bleached flour, the day after bleaching.

Q. Now, as to the color value of the patent, unbleached, as soon as you got it. After ten weeks, it was 1.58. What was it, before? A. 2.01, fresh—2.02.

Mr. Elliott: Is that the clear, or the patent?

The Witness: That was the patent.

By Mr. Butler:

Q. And the sample to be contrasted with that, is the 2.10?

A. 2.10?

Q. Unbleached?

293 A. They are a little confused. I was a little confused in my statement. Perhaps I can give it to you again.

Q. Yes; have them on the same basis, so we can contrast one with the other, immediately.

Mr. Butler: (To Mr. Elliott) That was your idea?

Mr. Elliott: Yes.

By Mr. Butler:

Q. Clear flours, before you start in with the patent.

A. First, the patent, gasoline number, fresh, average, 2.02.

Q. Clear, the same? A. 2.10.

Q. 2.10?

A. 2.10. Patent, aged 10 weeks, color value, 1.58. Clear, aged 10 weeks, 1.75. Loss, in the case of the patent, .44. Loss, in the case of the clear, .35.

Q. Now, the bleaching? A. Gasoline number—

Q. (Interrupting) Patent?

A. (Continuing) Of the patent, fresh .55. Gasoline number of the clear, fresh, .61.

Q. Did you test that, with the lapse of time? A. I did.

Q. What did you find?

A. The gasoline number of the patent, bleached, after 10 weeks, was .34, and of the clear after 10 bleaching was, .45, a loss in the first place of .21, and, in the second place of .16.

Q. Now, you didn't give us the five-week period, and I will ask you that, simply to keep it in order.

A. Approximately. That was approximately, after that time.

Q. Now, these figures you have given us, were the variations of strength. Can you give us the minimum color, for that time, and the maximum color value, of the 15 samples?

- A. I can. For the three periods,—fresh, and the—
- Q. (Interrupting) Yes, give us the spread for the three.
- A. I didn't give you the figure for five weeks.
- Q. Now, but give us just the spread, at the beginning, [at] at the 10 weeks. That will be enough for my purposes, I think.
- A. Unbleached patent, the maximum, 2.63.
- Q. Minimum? A. The minimum, 1.43.
- 294 Q. Clear.
- A. Maximum, 2.63. Minimum, 1.60. Aged 10 weeks, maximum,—for the patent?
- Q. Yes. A. 2.08. Minimum, 1.22.
- Q. Yes.
- A. Clear, maximum, aged 10 weeks, 2.17; minimum, 1.33.
- Q. Have you made any determinations or studies to find out whether or not this nitrite reacting material, by whatever name it is properly called, remains in bread made from the flour, so as to give us your opinion as to whether it would remain in the bread made from this flour, here?
- A. I have made an extensive series of experiments, touching this point.
- Q. And in connection with the same, did you make any test or observation alone, or with others, as respects the other qualities of the bread—like odor, and flavor—the aroma and flavor, whatever it may be.
- A. I did. In one set of experiments I only determined the flavor, and in a more recent set of experiments, I attempted to separate the flavor from the odor; in other words, in the latter case, not only chewed the bread, and got its taste, but also smelled the bread, and got its odor. Now, all these experiments were performed without seeing the bread. If one saw the bread they could readily tell whether it was bleached, or which was which of the two, being the same flour, bleached and unbleached, from its color, and, therefore, it would not be a fair test; and so pains was taken, always, to have the person who did this testing either in a dark room or blindfolded, or fixed some other way so that they could not gain any impression from the appearance of the bread. Now, the first series of experiments was performed with flour bleached in the laboratory, with different quantities of nitrogen peroxide. The quantities varied from 5 cubic centimeters to 500 cubic centimeters of gas to 7 kilograms of flour. The tests were made a week after the bleaching, and also five weeks after the bleaching. I will say that the amount of nitrous nitrogen introduced, for 5 cubic centimeters, was .6 of a part, per million; for 10, was 1.20 parts; for 25, 3.40; and so on. The flour seized in this
- 295 case contained 1.80, and therefore it may be stated that the bleaching was practically the same as would be obtained with 15 to 20 cubic centimeters of the gas. The bread in

each case,—the flour in each case was baked into bread, and by two methods. One method used was the so-called Koellner method, which has been employed in a good many mills and bakeries. It is not the method that is used in some sections of the country, but is, nevertheless, a useful one, it was thought, however, that this method might not—

Mr. Scarritt: (Interrupting) We object to that, if your Honor please.

Mr. Smith: This dissertation.

Mr. Scarritt: He is stating conclusions. Now, let him state a few facts. We object to him stating these conclusions, and arguments.

Mr. Butler: This was merely with respect to a detail—the preferability of one detail as against another, the reason for selecting the detail of experiment.

Mr. Scarritt: I am not objecting to the question, but the rambling statement he is making, with reference to these conclusions and arguments that he is interjecting into the case, which are absolutely immaterial, and an invasion of the province of the jury. He is attempting to decide the very questions that are to be submitted to the jury.

The Court: I don't know what the jury knows. He is describing the two methods of baking. I don't know what it is. Maybe the jury knows all about it.

Mr. Scarritt: He had left the description of the baking, and was telling what was thought. That is what I am objecting to.

The Court: I think we will go on.

Mr. Scarritt: As long as he was describing the process, I didn't object.

296 The Court: He was talking about the Koellner method of baking, as I understood him. I don't know what it is.

The Witness: (Continuing) The Koellner method is a straight dough method, whereby the bread rises but once. In most households, it is customary, as I understand it, and also in many bakery establishments, to raise the bread several times. It was thought that the Koellner method might not give the bleaching process a fair show, in that it might not eliminate as much of the nitrites as would a method more nearly like what was used in the household, and in the bakery, and so we devised another method, which can lay little claim to

originality, as it was merely the purpose to bake the bread, make a loaf of bread as nearly like what was made in the household, as possible,—to make a loaf of bread that would be acceptable to any of us at a meal. This was called the “domestic” method, and differed from the other, in that the bread was allowed to rise twice or three times. These methods were followed, side by side, in each case. Three judges were used to determine their opinion as to the flavor of the bread, always without seeing the—

Mr. Scarritt: (Interrupting) Now, we object to that.

The Court: Yes, I think—That objection is sustained,—what three judges said. We ruled one judge out, yesterday, and now I am going to rule out those three judges.

Mr. Butler: I have forgotten about the one.

The Court: He was about saying, as I understood—

Mr. Butler: (Interrupting) Well, very well. I am not now asking what they said. I want it so the record may show, my theory and idea of this matter is, it is proper to show what they did.

The Court: Yes.

Mr. Scarritt: Yes.

Mr. Butler: Now, I am not asking, now, for the conclusions, at all. As, for example,—I think there will be no harm to state it, so the Court may see just what my point
297 is,—for example, they made bread in the laboratory.

The Court: Yes,—how they did so.

Mr. Butler: Then, three individuals, at different times, who are known not to have seen the bread—

Mr. Scarritt: (Interrupting) Now,—

Mr. Butler: Now, just wait a moment, Judge Scarritt.

Judge Scarritt: All right, now. I don't want you to testify.

Mr. Butler: I am not going to say what they said. (Continuing) Taste the bread, and they say something about it, as to their findings or determinations, which indicates their opinion; what it is, I don't know.

Mr. Scarritt: Do you claim that that is evidence in this case?

Mr. Butler: Well, wait a moment. The record is made of that. This is done, from time to time, as I understand it, and the conclusions of these gentlemen, as—

The Court: (Interrupting) Will those gentlemen be here, on the witness stand?

Mr. Butler: No, I think not. I am going to be perfectly candid.

The Court: It will not be allowed this witness to state what they found, or what they said.

Mr. Butler: Only what they did.

The Court: Oh, yes,—what they did, I suppose, under his guidance, and under his eye. The chemist must have assistants.

Mr. Scarritt: What sense is there in saying they tasted the bread, when there is no conclusion to be derived from it, according to the statement of the gentleman on the other side.

Mr. Butler: Suppose the question was, your Honor, as to color tests, or anything else,—

The Court: I can't hear you, Mr. Butler.

298 Mr. Butler: I say, it seems to me that, with respect to an inquiry of this sort, conducted in a broad way, it does seem to me that the conclusions are admissible. Indeed, almost all the conclusions arrived at, as a result of chemical experimentation, for example, are arrived at by that method.

Mr. Scarritt: This is an expert witness, and you propose to put him on, to tell what other experts did?

The Court: Let us proceed.

By Mr. Butler:

Q. Who were the judges? Maybe we can get them. I don't know.

A. The judges were three chemists in the laboratory. One of them is here in the court room; the other two are in the East. One is in New York, the other is in Buffalo.

Q. Oh, yes. Well, how was it done? Now, don't state the conclusions until we find out whether or not that is proper.

A. These people were asked each day, to taste all the bread, and give their opinion as to which was the superior—the bleached bread, or the unbleached—bread made from the unbleached flour.

Mr. Scarritt: We object to that, and ask to have it stricken out, if your Honor, please,—absolutely immaterial, and hearsay testimony.

The Court: I don't see that it is material, one way or the other.

Mr. Butler: I think it ought to remain in, as preliminary, now.

The Court: Oh, yes; I think so, as to what they did.

By Mr. Butler:

Q. Was there any record kept as to the expression of opinion?

A. A careful record was kept of their opinion.

Q. Now, did you, yourself, with respect to this bread test, take part?

A. In that first series, I started to take part, but was
299 obliged to give it up. More recently, in a more extensive series of experiments, I, myself, took part in every tasting, and the other judge—there were only two in this latter case—is in the court room.

Q. That is, Miss Wessling? A. Miss Wessling.

Q. These two series were conducted in the same way as the other, except different judges? Was that it?

A. Different judges.

The Court: Yourself, and this lady.

The Witness: Yes, sir; that is true, Judge.

By Mr. Butler:

Q. Now, give us the series. You had bleached flour, and unbleached flour, and different degrees of bleaching, did you?

A. Only one degree of bleaching.

Q. Only one degree of bleaching?

A. And that degree of bleaching was practically the same as that stated in this seizure.

Mr. Scarritt: Now, we object to his stating that conclusion. Let him tell how he mixed it, and how it is bleached, and the jury can determine whether it is the same, or not.

Mr. Butler: I just asked him, how did the degree of bleaching, used in the bleaching of the flour in the laboratory, compare with the other examination of the bleaching of this flour.

Mr. Scarritt: That is asking for a conclusion.

The Court: Judge Scarritt, let me understand you. You object to this witness stating his conclusion?

Mr. Searritt: His conclusion, and the other experts' conclusions.

The Court: I sustain you, on that, and overrule you, as to what this witness, himself, found.

Mr. Searritt: All right. I am not objecting to that.

The Court: Yes, you were, Judge. I so understood you.

Mr. Butler: You misunderstood the witness, Judge Searritt.

300 The Court: (To witness) You are not to state what these three persons reported, or what this lady reported.

Mr. Searritt: No, he was stating the conclusion that this experiment was the same as some other experiment when the law requires that he shall state what each experiment was, and let the jury determine whether it was the same.

The Court: Well, that's the long road, but we get back to the same Robin Hood's barn; but go ahead.

Mr. Searritt: I don't know where Robin Hood's barn is!

The Court: All right.

By Mr. Butler:

Q. Go on, and describe this second series, and your own conclusions as to what you tasted and smelled, and determined?

A. I have already described the flour used, as being 15 patents and the corresponding 15 clears from as many mills, in different sections of the country, and representing a variety of flours. The average percentage of nitrous-nitrogen in the patent flours, fresh—not the average percentage, but the average parts of nitrous-nitrogen, per million, in the fresh flour, patent, was 2.19; aged ten weeks, 1.73. The average parts per million of nitrous-nitrogen, in the new flour, clear, was, 2.08; aged 5 weeks, was 1.83. I should have given the amount of nitrous-nitrogen in the patent flour, aged five weeks, which was 1.91. The tests were made on the new flour, and after aging five weeks. We made no tests after aging ten weeks, because that came only a few days before this trial.

Q. Now, how was the bread made, by the two methods you referred to, in the former series of experiments—the Koellner method, and the domestic method, as you described it.

A. As our former experiments had shown the results obtained by the Koellner method, for the points in question
301 tion, were practically the same as for the domestic method, only the Koellner method was used, in this series.

Q. Now, what were your conclusions? Now, what did you do? Just tasted it and smelled it—each sample?

A. Tasted and smelled each sample.

Q. And that without seeing it, and without any knowledge of the circumstances as to whether it was bleached or unbleached flour?

A. Without seeing, always tasting or smelling the bleached and the unbleached, corresponding, side by side. It was merely a comparative test, to see whether the bleaching made the flour inferior or superior, as regards flavor.

Q. Well, now, what did you decide, in each instance?

A. First, I will give the results—my opinions upon the flavor of the bread.

Mr. Scarritt: From your personal experiments.

The Witness: My personal experiments.

By Mr. Butler: Yes. I called for that, Judge, only.

A. Of the 15 flours, patent, examined, in every case I found the bread from the fresh flour superior to that made from the bleached flour.

Mr. Scarritt: I object to that, if Your Honor please,—mere conclusion of the witness.

By Mr. Butler:

Q. Well, I asked what was your opinion, as respects taste and odor?

Mr. Scarritt: I object to that question, and ask that the answer be stricken out. It is for the jury to decide whether it was superior or inferior, and for him to state the fact, as to what taste it had, if he can.

Mr. Smith: Nothing in the law about flavor that I know of.

Mr. Scarritt: And for the further reason that it is immaterial what the flavor was.

Mr. Butler: Now, the statute says food is adulterated, that has anything mixed or packed with it, so as to impair
302 or injuriously affect its quality or strength. It is in the disjunctive. Now, I believe that bread's qualities involves the idea of the flavor of the bread, and the aroma of the bread. Now, that being so, it is proper to show the effect upon flavor and aroma, of bread, of the bleaching of the flour that makes the bread, by means of this Alsop process, in a manner comparable with the manner in which this particular flour was bleached. Now the evidence shows that the bleaching was the same method, and, substantially, on the average, the same

degree of bleaching. It shows the method by which the bread was made, and here is a man who is experienced, now, upon parallels, with the bleached and the unbleached flour, and we ask him his opinion, in each instance, as to which was superior, or better in flavor and aroma, separating as to each, if need be. Now, that is the precise situation presented, and the precise information which we offer, and it seems to me that it is exactly on the same footing as would be the testimony of any person who had tasted an apple before it had been cooked, and any apple after it was cooked, as to whether the taste was better before cooking, or afterward.

Mr. Scarritt: You may taste an apple and an orange and say that the apple was very much better than the orange—superior to the orange.

Mr. Butler: Certainly.

Mr. Scarritt: That is a matter with your taste. I might taste it, and say the orange was better, but this is different. I am asking for the ruling of the court on the question, here—not on what Brother Butler is making the speech about. This gentleman pretends to say he tasted two loaves of bread, and that one was superior to the other. Now, that is a question for the jury to decide. He can tell the jury how it tasted, to him, so far as he is concerned—not whether it suffered
303 in quality or quantity, or anything else, but how did it taste. Then the jury decides whether one is superior to the other. It isn't for him to tell the jury, because that is deciding the case. That is deciding that proposition, and, under the rules of evidence, that is not for this witness to determine. It is for him to tell the facts as to how,—if he can—one piece of bread tasted, and how the other tasted, and for the jury to determine whether one was superior to the other, if they can determine it from that kind of testimony; but he surely can't come in and tell this jury, from the witness stand, that one was superior to the other, because, that is the very point that your Honor is determining, and that you will submit to this jury, and, if they believe this witness's conclusion, they will have to find one way—whatever way he says. We all know that a witness can't invade the province of the jury, by telling them which way to decide the case, or telling them his opinion upon questions that they are to decide. There is no trouble about that.

The Court: Suppose this contest was over a Jonathon apple—two apples, one raised in Arkansas, and the other in Michigan. They look alike. The apples have been eaten. How are you going to get at it, Judge.

Mr. Scarritt: Why, if you put an expert on the stand in the tasting business, as your Honor was talking about the smelling business, yesterday, and he tastes both apples, or two similar apples, he may be able to say that one tastes sour, and one tasted sweet, and it is for them to determine whether a sour apple is superior to the sweet, or the sweet apple superior to the sour. It is not for him to say that one is superior to the other.

The Court: Suppose now, one of the Johnathon apples is sweet, and the other sour? What are you going to do?

Judge Scarritt: Then he can say they both tasted alike.

304 Mr. Butler: Suppose they don't taste alike.

Mr. Scarritt: He may say one tasted less sour than the other, or more sour than the other. One tasted sour, and the other less sour, but he can't say, when that is the point in issue, that one was superior to the other, if that is the question the jury is to decide, because that is invading the province of the jury.

The Court: Well, I had that very question up, here, and of course I am not quoting my own rulings, as authority. I had that very question up, in this very court room, with reference to Arkansas and Michigan Johnathon apples.

Mr. Smith: We are determining misbranding.

The Court: And I can see no other way to get at it.

Mr. Scarritt: Than to let a witness say, when the jury is to determine that? Your Honor certainly didn't say that.

The Court: I certainly did, and I think I am right.

Mr. Scarritt: But I think I can show your Honor that, under the rules of evidence, you are wrong on that.

The Court: That was one of the tests applied to the apples.

Mr. Scarritt: Yes, you can apply tests, and submit those tests to the jury, but for an expert witness to get on the stand and decide, in answer to a question—a very pivotal question that the jury is to decide, is in my opinion, contrary to the rules of evidence.

Mr. Butler: May I ask a question upon that, Judge Scarritt?

Mr. Scarritt: Certainly.

Mr. Butler: Suppose, in a homicide case, the question was the cause of death, whether by shooting or by poison. May not an expert who has shown himself familiar with the surrounding facts, be asked what was the cause of death, in his opinion?

Mr. Scarritt: No, sir; he cannot. Not under our rules.

Mr. Butler: That isn't so in our jurisdiction, because
305 I have known too many of those.

Mr. Scarritt: Not under our rules, or the rules of this—

The Court: (Interrupting) What rules are you talking about? I don't know.

Mr. Scarritt: I am talking about the rules of expert testimony, which provides that an expert witness cannot state, as a conclusion, in answer to a question, the very fact that the jury is to decide.

The Court: Well, let's let this go until tomorrow, and we will see. Pass this subject-matter by until the morning, but I did hold, maybe wrongly, with reference to apples. You can't tell, and no man living can tell how a Johnathon apple tastes. You can say it is agreeably, or offensively to the taste.

Mr. Scarritt: Then why did you let the witness decide the issue of the case?

The Court: Because the very question was with reference to Arkansas apples, and the apples in Michigan.

Mr. Scarritt: As to what they should be called?

The Court: No. They were called Johnathons.

Mr. Scarritt: Or as to what they contained—their contents? You Honor must have had some—

The Court: (Interrupting) Oh, that's another thing.

Mr. Scarritt: Yes. I think if Your Honor lets this go until tomorrow, I can show you a couple of decisions that will settle it.

The Court: All right. We will let it go till morning. Of course, I would be very glad, at any time, to have counsel furnish authorities on these matters. They are very interesting, and some of them are, to me, somewhat new. I tried the apple case here in this court room. Of course, I don't care
306 but there is a difference between an Arkansas and a Michigan apple.

Mr. Scarritt: Yes, and there is a difference between a Minnesota apple and a Nebraska apple, too.

The Court: Yes, but—You are getting at the cost.

Mr. Scarritt: I would like to ask your Honor if the decision has been reported?

The Court: I don't know whether it has or not.

Mr. Scarritt: In the court of appeals.

The Court: No. It wouldn't be proper to talk about that case, and the results. That wouldn't be proper, here, but that was the question for determination.

Mr. Smith: Whether or not they had misbranded their apples?

The Court: Well, they can't brand an Arkansas apple or a Michigan apple, at all.

Mr. Smith: I didn't suppose anybody could.

The Court: Oh, yes,—lawyers stood up here and talked a good deal about it. A good deal of oratory on that question, and in this room. A good deal of it.

Mr. Smith: Now, this question of flavor—

The Court: Well, let it go until morning.

Mr. Smith: Allright.

Mr. Butler: I will just ask the witness a question, which might make one step in progress.

Q. Comparing the taste of bread made from the same flour,—say that one was bleached flour, and the other was unbleached flour, as you have detailed, in your experiment, which you tasted bread made from each, as to which you were testing at that particular time,—you may state whether or not the taste was the same or different?

The Court: You may answer that. Let it go until morning, after that question.

By Mr. Butler:

Q. Do you know my meaning, now? I am not asking
307 you, now, to characterize the taste, but the two,—the unbleached flour bread, and the bleached flour bread, made under the conditions you have detailed,—I will ask you, whether or not, according to your senses, the taste of the bleached flour bread was the same as the taste of the unbleached flour bread, or whether it was different?

Mr. Helm: Mr. Butler, as I understand the witness, he says that he didn't know whether he was tasting bleached or unbleached flour; that he made these tests when he was blindfolded, or in a dark room, and didn't know. Now how could he make any comparison, if he didn't know?

Mr. Butler: Well, they had some way of getting that on record.

Q. You recorded the result? A. Yes,—the result.

Q. So that, afterwards, upon looking at the record, you could then refer back to the one you tasted?

Mr. Helm: He could keep the taste in his mouth until after that time? Is that it?

The Witness: If I may be allowed to state,—

The Court: Oh, just state if there was any difference and then pass it until morning. Was it the same, or different?

The Witness: It was different.

The Court: Let us let that go until tomorrow. Mr. Lyons, will you get the three volumes of Wigmore, so I can get at my room, tonight.

Mr. Lyons: Yes, sir.

Mr. Butler: I think that is all for the present.

The Court: You may recall him in the morning. You may cross-examine him on this, now, Mr. Smith.

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Cross-Examination

By Mr. Smith:

Q. I don't remember whether you stated you were a graduated physician, or not? Are you? A. Pardon me?

Q. Read the question.

(Last question read)

A. I am not.

Q. But you are a graduated chemist? A. Chemist.

Q. And I believe you qualified as a food chemist.

A. Agricultural food chemist.

Q. What is included within the term "agricultural food chemist"?

A. The examination of agricultural products, and products used in farming—fertilizers, and insecticides, and cattle foods, and dairy products, and those things.

Q. I see. Have you spent most of your time in investigating foods for animals, or foods for man?

A. Pretty well divided, between both.

Q. I see.

A. More, probably, in investigating foods for man in the last fifteen years.

Q. Has that been confined to vegetables?

A. Oh, it has been confined to all classes of foods.

Q. That man eats? A. That man eats.

Q. That would mean, vegetables, fruits, and meats?

A. Vegetables are not examined so often, by the agricultural chemist, except you include potatoes, and such products.

Q. Well, during your experience, and during the time you have been connected with the government service, have you made examination of vegetable food products, to determine their value as such,—as food products?

A. I don't know as I quite understand.

Q. During the time that you have been in the service of the government, have you made examination of different
309 food products, for the purpose of determining their value, as food products?

A. That would be, as a rule, incidental. More generally, the examination was to determine their purity and freedom from adulteration.

Q. All right. All right.

A. But, incidentally, that would come in, because—

Q. (Interrupting) Well, in such an examination, to determine their purity, you have examined to see whether or not any foreign substances had been introduced into them?

A. Yes, sir.

Q. And did that investigation include vegetables?

A. To some extent—mushrooms, and so forth. More generally the preserved vegetables.

Q. Well, did it include vegetables, just simply in a green, or in a prepared state? A. In a prepared state.

Q. Now, you have investigated the different cereals, to determine their value as a food product? A. Yes.

Q. And that included cereals that are in a prepared state?

A. Yes. Cereal breakfast foods, and such products, yes, sir.

Q. Yes. And you have examined meats, have you, to determine their purity, and their value as a food product.

A. Not domestic meats.

Q. Well, what other kinds of meats do you have, but domestic? A. Imported meats.

Q. Oh, you have examined imported meats, have you?

A. To some extent.

Q. Have you ever examined any of the products of the packing houses, to determine their purity, from the food standpoint? A. Not the Chicago packing houses.

Q. Have you, in Kansas City?

A. Not during my connection with the government.

Q. Well, did you, before your connection with the government? A. To some extent.

Q. What I mean, Professor, is, have you made an examination of meats—pork, beef, veal, and mutton,—as it is before it is cured, and after it is cured, as it is when it is freshly killed, and as it is when we get it served to us on our tables, to determine its purity?

A. I made no such comparison, but I have done some work on it, during the Spanish War, concerning canned meat.

Q. Now, did you receive this sack of flour, that was sent you? Did you receive it from the express company, personally? A. Yes, sir.

Q. Open it personally? A. Yes, sir.

Q. Now, in order to make that test, for the purpose of determining the amount of nitrogen peroxide that was contained in it, or the amount of nitrites that had been imparted to it by the bleaching, where did you get your sample—right from the top? A. I mixed it all up.

Q. You emptied the sack, did you?

A. Emptied it on a large piece of paper, and, by means of raising one corner after the other, mixed the whole.

Q. You had two sacks sent you, there, to Chicago?

A. Two sacks.

Q. Did you examine both of them? A. No, sir.

Q. You forwarded one at once to Washington, immediately? A. Soon afterwards.

Q. You made no examination of that? Now, I understand that in your examination of this, you found that there was 1.8 parts per million of nitrite-nitrogen, to a million parts of flour. Is that right? A. That is true.

Q. Now, you mean, in volume, or weight? A. In weight.

Q. In weight? A. That would be in weight.

Q. In other words, if you could have got the nitrogen peroxide separated from a million pounds of flour, and put it on the apothecary's scales, there would have been 1.8 pounds of the nitrogen peroxide, to a million pounds of flour?

A. No, sir.

Q. How is it?

A. There wouldn't be any nitrogen peroxide there, that I know of.

311 Q. Well, let us learn about that. Did you find any nitrogen peroxide in this flour?

A. I didn't examine it for nitrogen peroxide.

Q. Well, you were examining it to find what the bleaching process had done, didn't you? A. Yes, sir.

Q. Well, did you find any nitrogen peroxide there?

A. I didn't examine for that. I didn't find any.

Mr. Scarritt: State whether he found any.

By Mr. Smith:

Q. You were examining this, to find what had been imparted to it by the bleaching process, weren't you?

A. Yes, sir.

Q. Now, tell the jury whether or not you found any nitrogen peroxide in it.

A. I didn't find any nitrogen peroxide.

Q. What did you find? A. I found nitrous acid.

Q. Is nitrous acid a gas, or a mineral, or a liquid?

A. Well, nitrous acid, as such, hasn't been isolated, pure. It exists with air.

Q. Well now, you chemists understand what that means, but the rest of us don't, and when you say that that hasn't been isolated that doesn't convey anything to me. I don't know whether it does to this jury, or not, but is it a gas—nitrous acid,—or, is it a liquid, or is it a mineral?

A. Well, it has not been isolated, and I couldn't say exactly what it was. It might be a gas, or it might be a liquid. It would depend upon the temperature.

Q. Well, you found 1.8 pounds part, of this something, to the million, did you?

A. Calculated as nitrogen, and the million of flour. If you calculate it as nitrous acid, it would be nearly four times as much—it would be about eight parts per million.

Q. But, figured as an acid? A. Figured just as nitrogen?

Q. All right, let us call it nitrogen, and you found 1.8 parts of nitrogen, to a million parts of flour. Is that right?

A. That is right.

312 Q. That is, in weight? A. That is in weight.

Q. In other words, if the nitrogen could have been separated from the flour and weighed, the weight of the nitrogen would have been 1.8 parts, or one and eight-tenths pounds of that to a million parts of flour. Is that right?

A. That is the point.

Q. Well, now, this nitrogen that you found there, in such quantity, that there was 1.8 parts of that, to one million parts of flour,—is that a liquid, or is it a gas, or is it a powder?

A. The nitrogen is a gas but it doesn't exist as nitrogen, in the flour.

Q. Well, that which you found in the flour. Now, that's what I am concerned in, was that which you found in the flour—did you find it in the form of a liquid.

A. I couldn't determine that.

Q. Did you find it in the form of powder.

A. I couldn't state what form it was.

Q. Did you find it as a part of the gas—in the form of a gas?

A. I made no attempt to find out whether it was a solid, or gaseous—a solid or a liquid substance.

Q. Well, you were testing this flour, to determine what had been imparted to it, weren't you? A. Yes, sir.

Q. And yet, you can't tell this jury whether or not that thing which you found was a gas, a liquid, or a powder, can you? A. No, sir.

Q. Can't tell it? But you know you found it there?

A. No question, whatever, that I found it.

Q. Now, these figures, you know, are sort of—need, I think, a little reduction. In a million pounds of flour, if we can conceive of that much flour, there would have been 1.8 pounds of this something which you found, but yet, you can't tell whether that is a gas, or liquid, or powder? Is that right?

A. That doesn't express it accurately.

313 Q. Well, aren't those the figures you gave me?

A. That is the method of expressing what was present in the flour.

Q. Yes. A. If I may be allowed to explain—

Q. (Interrupting) No, you will take too long. Answer my questions, and we will get through here. You testified, didn't you, that, in a million pounds of flour, there would be 1.8 pounds of this— A. (Interrupting) Nitrous nitrogen?

Q. Nitrous nitrogen? A. Yes.

Q. It has now become nitrous nitrogen, has it?

A. That is merely another means of expressing the same thing.

Q. All right. Now, let us get that a little reduced. In a fifty-pound sack of flour, how much would there have been?

A. In a fifty-pound sack of flour?

Q. Yes.

A. I will have to calculate that, to—

Q. (Interrupting) I wish you would, please. I never saw a million pounds of flour, and I can't comprehend it.

A. It is a matter of simple arithmetic, of course.

Q. All right. I want you to do a little deduction, here for us. A. May I have a piece of paper?

(Paper handed to witness as requested)

Mr. Lyons: This will be big enough to put the figures on, I guess?

Mr. Smith: I guess so.

A. (Continuing) You don't care for it accurately—just approximately?

Q. Oh, as nearly as you can get it—I don't care for your decimals carried out too far, but I want you to tell the jury, as

nearly as you can, how much of that there would be in a fifty-pound sack of flour.

A. There would be approximately forty milligrams, calculated as nitrogen. If you calculated it as nitrous acid—

Q. (Interrupting) Well, pardon me,—I don't know anything about a milligram. I want to know what portion of a pound of this stuff, there would be in a fifty-pound sack of flour.

A. That will take me some time to calculate, because I always use the metric system in the laboratory. It is a
314 matter, simply of arithmetic.

Q. Yes. We don't know anything about that, here but we know something about pounds and ounces?

A. I think perhaps I will have to look through the reductions in the arithmetic, to find all these equivalents, and grains—would you like it in grains?

Q. I want to get it in pounds or in ounces. What would be the fraction of a pound there would be in a fifty-pound sack of flour?

A. Pardon me. I see what you mean. I think I shall have to ask somebody how many grains there are in a pound, or else, how many milligrams there are in a pound. I shall be very glad to do your arithmetic.

Q. Don't ask me.

The Court: Oh, you don't need to give that. Just simply take that and divide it by twenty thousand. That's all there is to it.

Mr. Scarritt: He can do it in a minute, if the Court did it in his head.

Mr. Butler: Why don't you do it for him?

Mr. Scarritt: It would be one ten-thousandth of a pound.

Mr. Smith: I think that this witness has been giving some figures that are confusing, and I want to get him to straighten it out.

Mr. Scarritt: About one ten-thousandth of a pound.

Mr. Butler: All right, if you say that is right.

Mr. Scarritt: I don't say that is exactly right.

Mr. Helm: I think he can calculate it much easier using fractions of a pound, because there is one and eight-tenths parts—1.8 pounds in a million pounds of flour.

Mr. Smith: Yes.

Mr. Helm: Divide 1.8 by a million.

The Witness: I was beginning at the wrong end.

315 Mr. Helm: Then, multiply by fifty.

Mr. Smith: Now, let the witness do this. I will call you to the stand later.

The Court: Now, gentlemen, you must either agree, or let the witness do the figuring, and not everybody be giving figures. We have all been giving figures, here. I take as much blame as anybody else. This is purely a matter of arithmetical calculation, but it is a matter that anybody is likely to get wrong on. Everybody has his own method of computing decimals.

A. I make it four ciphers—point four ciphers, nine. That is, if I have got the point in the right place. I will stand corrected on the arithmetic. Is that right?

By Mr. Smith:

Q. That is, nine hundred-thousandths, isn't it? You said decimal point four ciphers.

A. Yes, nine hundred-thousandths.

Q. Nine hundred-thousandths?

A. If my arithmetic is correct.

Q. Well, I guess it is. That is, nine hundred-thousandths of a pound, in a fifty-pound sack of flour?

A. Calculated as nitrogen.

Q. Yes, sir.

A. It would be four times that, if you calculated it as nitrous acid.

Q. The same as you calculated here (referring to a document)?

Mr. Butler: Judge Scarritt, what was your figure?

Mr. Smith: He had one ten-thousandths.

Mr. Scarritt: I had it nine ten-hundred-thousandths.

By Mr. Smith:

Q. Now, coming down to this loaf of bread that you made out of bleached flour. If there were nine hundred-thousandths in a fifty-pound sack of flour, what would have been the amount in that loaf of bread you made out of bleached flour?

A. Oh, from a third to a half of that.

Q. Well, it doesn't take a fifty-pound sack of flour to make a loaf of bread, does it? You measured the amount

316 there was in a fifty-pound sack, didn't you?

A. Oh, you mean in a loaf of bread?

Q. Yes, sir. I am trying to determine the amount of this there is in the loaf of bread you made.

A. It depends on how large a loaf—how much you use. If you will say how much flour—

Q. (Interrupting) How much flour did you use in that loaf of bread you made?

A. Three hundred and forty grammes.

Q. How nearly a pound?

A. Oh, I would have to calculate. If it was—

The Court: (Interrupting) That would be owing a good deal to what bakery you buy of.

Mr. Smith: I am trying to get at the loaf of bread he made.

The Court: Oh. I thought you were talking about an ordinary loaf.

Mr Smith: I am talking about his.

A. (Continuing) Those were small, experimental loaves, such as are not cooked for use, and I really haven't the figures, —how much the loaf weighed. You want to know how much was used in the bread.

Q. Yes, sir. Assuming, now, that all of this which was in the flour remained in the bread, after you baked it, I want to know how much of this there was in the loaf of bread which you baked? What would be the proper decimal, to represent that?

A. I don't know that I baked any loaf of bread, of this particular seizure.

Q. Well, you had others that you tested about the same time, didn't you?

The Court: Oh, take a loaf of a common weight, Mr. Smith. I don't know what they weigh, myself.

Mr. Scarritt: He gave the weight.

The Court: Well, if it's one pound, or if it's a half a pound, —whatever it is, it is a simple arithmetical proposition.

317 Mr. Scarritt: Yes.

The Court: When you get down to it, it is primary arithmetic, that any knee-breeches boy can figure out.

Mr. Smith: No, but this witness is having a good deal of trouble with it.

The Court: No. Now, that is not fair, Mr. Smith. Over there sits a scientist, and there is Judge Scarritt, and you, and the witness, that all disagree.

Mr. Smith: I am taking what the witness said.

The Court: I know, but I know what the witness said, and what the scientist said, and what Judge Scarritt said.

Mr. Smith: I am not asking for the scientist to do the arithmetic on this.

The Court: Treat the witness fairly.

Mr. Scarritt: We have a right to disagree with the witness.

The Court: We have no right to disagree on the rule three. The school boys, down here, in knee breeches, haven't any right to disagree on the rule, three.

Mr. Scarritt: What did you get, if Your Honor please.

The Court: I didn't figure it out, but a fifty-pound sack of flour is about one twenty-thousandth of a million don't you see?

Mr. Scarritt: Yes.

Mr. Smith: I am not doing this, simply to get figures. The witness testified, the Court will remember, that he could tell the difference in the taste of the bread, now, I am trying to find out the amount of this there was in that loaf of bread.

The Court: Don't you know how to figure.

Mr. Smith: Well, I may not be as accurate as he is.

Mr. Butler: I think we will enter an objection to these unnecessary computations.

318 The Court: Objection is sustained.

Mr. Smith: I contend that it is not unnecessary. I think I am entitled to that.

The Court: I can figure it out, in two minutes, and every gentleman in this room, who has been to a common school can do the same.

Mr. Scarritt: I haven't the amount of flour.

The Court: Well, a loaf of bread is about as indefinite as the size of a rock. You have got to get at the size of the loaf. Now, this is no matter of levity. It is a matter of importance, now, he starts out with a million parts of flour. Now, Mr. Smith reduces it to fifty pounds. That is one twenty-thousandth part of a million. There would be twenty thousand piles of sacks, fifty pounds each. Now, a loaf of bread, or the fifty-thousandth, or a hundredth, or whatever it may be, that sack of flour,—well, the objection is sustained.

Mr. Scarritt: He is the only one knows.

The Court: No, he isn't. I know, you know, and everybody knows.

Mr. Scarritt: I know, but I mean the amount of flour in his loaf of bread. That is what I am talking about.

By the Court:

Q. Did you weigh it?

A. I didn't bake any of the regular size.

The Court: Let's go on.

By Mr. Smith:

Q. Did you see the loaves of bread which you tested, and in which you said you could detect a difference in taste?

A. I did.

319 Q. Can you tell the jury about the amount of flour that it took to bake one of those loaves of bread?

A. Three hundred and forty grammes.

Q. Well, now, I suppose I ought to know, how to reduce three hundred and forty grammes to pounds, but I do not, unfortunately, so, can you tell me how many ounces there were in that? Was that more or less than a pound of flour?

A. It was about eleven ounces.

By the Court:

Q. Eleven sixteenths of a pound?

A. Something like that.

Q. Well, generally speaking?

A. Yes, sir. If I may explain—these were test loaves—smaller than are made for domestic consumption.

By Mr. Smith:

Q. Yes? A. Perhaps a quarter as large.

Q. Now, you testified as to further examining this flour, for the purpose of determining the ash content.

A. Yes, sir.

Q. I wish you would tell the jury how you determined that.

A. I weighed out a certain quantity of the flour in a platinum dish, about that size (indicating). I will say that in the laboratory we use the platinum a great deal, because it is not affected by ordinary heating, to red heat, or by common acids. The dish was carefully weighed, and then a certain amount of the flour was put into the dish—about a one-sixth of an ounce. The dish was then put over a flame—a gas flame—kept at a heat just short of a red heat, and burned, until it was reduced to a char. Then, it was put in an oven a little furnace,—and burned until nothing but the mineral matter was left. It was then taken out and cooled, and weighed, and that gave us the amount of ash. I will say that flour is much more difficult to burn than wheat. It takes a longer time.

320 Q. Yes. And in this flour, you found there was fifty-seven hundredths of one per cent of ash?

A. Fifty-seven one-hundredths.

Q. Fifty-seven one-hundredths?

A. Yes, fifty-seven hundredths of one per cent of ash.

Q. Of ash? Now, what does that indicate, that the flour contained with respect to bran? A. With respect to—

Q. (Interrupting) The amount of bran in the flour. Does that indicate anything. A. Indirectly.

Q. What?

A. It indicates that it contained more of the inferior part of the grain—if that is what you call the bran,—than would be present in a patent flour.

Q. Yes. Now, in that connection, you said, I think, that, as you regard it, patent flour could go up to forty-three hundredths of one per cent? A. Forty-three hundredths.

Q. Yes?

A. I never found a patent that went beyond that.

Q. Have you ever seen a schedule, fixed by the Department of Agriculture, or any other department of the government, determining what should or should not constitute patent flour?

A. No, sir.

Q. Have you ever seen any rule or standard, or grade, established by any food or health department, establishing what should or should not constitute patent flour?

A. Not to my knowledge.

Q. Has there ever been, to your knowledge, any rule promulgated, either by the Department of Agriculture, at Washington, or by any of the Food and Drug officers of the department at Washington, or any food or drug commission, or health department of any state, or of the federal government, that has determined a standard for the grade of patent flour?

A. May I ask whether you mean whether this has been publicly announced?

Q. Yes, sir.

A. I know of no such rule, or order, except, I might mention the proceedings of the New Orleans trial.

Q. But, you have never known of any rule being promulgated, or order established, or grade laid down by any department of the government, or by any food commissioner, 321 or any health commissioner, any place, have you?

A. I don't happen to know of such, laid down for public use.

Q. No. Or, as a guidance for millers.

A. I don't happen to know of any such.

Q. Now, the amount of patent flour that can be obtained from wheat, is dependent, somewhat, on the character of the wheat, is it not. A. Dependent, somewhat.

Q. And it depends somewhat on the equipment of the mill, does it not? A. It does.

Q. And it depends somewhat on the competency of the miller, does it not? A. It does.

Q. Did you ever know two millers to have exactly the same standard to which they adhered, at all times?

A. I don't think that is a question that I am competent to answer.

Q. All right. Have you made any examination of the standards or per cent of patent flour, adopted by different mills, in different places? A. Read the question.

(Question read).

A. Oh, I have seen statements, repeatedly, with regard to the standards, but I don't happen to have [an] definite figures.

Q. Each one has his separate standard, does he not?

A. For patent flour?

Q. Yes, sir. A. That I can't say.

Q. Well, do you know that they do not? A. I don't know.

Q. You know, do you not, as a matter of general knowledge, or from your experience, that different millers get more than others? A. Get more patent?

Q. Yes. A. Yes, sir, I do.

Q. Now, as a matter of general knowledge, don't you know, and from your investigations, that millers, some of them from their improved machinery, and their special facilities, get nearly one hundred per cent? Don't you know that?

A. No, sir.

Q. Do you know that they do not?

A. I have never seen any.

Q. You have never seen any?

A. I have never seen any one hundred per cent patent.

322 Q. But you are not prepared to say that they do not, are you? A. I think it is impossible.

Q. Now, you have made a considerable study of the bleaching of flours, have you? A. Yes, sir.

Q. Have you made that study in mills, where the bleaching process was used, or has it been largely in your laboratory?

A. The chemical work was done in the laboratory. Samples many of them,—

Q. (Interrupting) You haven't gone into the mills, and seen the operation?

A. Oh, very many times, yes, and have obtained samples from the mills.

Q. Yes? Now, in these experiments, that you have performed for the purpose of determining the strength of the gluten, and the acidity, and the flavor, and the color, and the fat, and so on—with what have those experiments been performed. A. With what flours?

Q. Yes, sir, with what flours? A. A variety of flours.

Q. Where obtained? A. Different parts of the country.

Q. Where bleached?

A. Bleached in the laboratory, many of them.

Q. Where were the others bleached?

A. Bleached in mills.

Q. Have you ever gone to the Lexington Mill & Elevator Company, or, have you ever sent to the Lexington Mill, and got from it samples of its bleached and unbleached flour, in order that you might determine the relative acidity, or the flavor, or the quality of the gluten, from its mills?

A. I don't remember such. I may have.

Q. State to the jury, if you can, to what mills you have gone, or have sent, and have got samples of bleached and unbleached flour, from the same grade of wheat, in order that you might determine the relative strength of the gluten, or make the acidity test, or the other tests that you have been engaged in.

A. Where I have personally been to the mill and got the samples?

Q. Yes, sir.

323 A. Such samples have always been obtained for me by the official inspectors of the department, and submitted to me.

Q. Well, in what form do those samples come in?

A. They come in under their seals.

Q. And do they contain both bleached and unbleached flour?

A. We have had such.

Q. How many of those have you had?

A. I don't know exactly.

Q. Well, what is the fact, as to whether your experiments, as a rule, have been made with this flour that came from the mill, or flours that you bleached in your laboratory?

A. I have done both.

Q. Well, which has constituted the greater portion of it?

A. Oh, I haven't counted them, sir.

Q. Will you give me the name of a single Nebraska mill, from which you have obtained both bleached and unbleached flours, of the same grade?

A. I have a table here, showing some results. Uptike Milling Company.

Q. Now, what did you obtain from them? Samples of both the bleached and unbleached flour? A. Yes, sir.

Q. When was that obtained?

A. A couple of years ago, approximately.

Mr. Scarritt: I can't hear a word you say.

A. (continuing) A couple of years ago.

By Mr. Smith:

Q. Give me any others from which you obtained samples both of bleached and unbleached flour.

A. Bleached by the Alsop process?

Q. Yes, sir. Yes, sir.

A. Fremont Mill Company, Fremont, Nebraska.

Q. Yes? Did you obtain these, or did [you] assistants send them to you?

A. They were obtained, either by inspectors, or some one representing me.

Q. I see. And it was some that was sent to you that way?

A. I do not have the data right here.

Q. Now, can you tell us what the ash content of a straight flour is?

A. It is more than the patent, from the same milling. It is variable.

Q. Well, that doesn't answer my question, I think. Can you tell the jury what would be the ash content, of what you have denominated a straight flour.

A. It would vary according to the milling process, and the grade of wheat.

Q. Between what figures?

A. I don't think I could give you the limit. It is such an indefinite thing. But the percentage of ash would be greater than in a patent.

Q. Can you give us the ash content of a clear flour?

A. That, also would vary, but would be higher than in a patent, and, for the same milling, higher than the straight.

Q. Now, you testified that you tested some of this flour, in question, to determine its color where you used what you called "the gasoline test". Now, tell us how you prepared that test. A. How I prepared the test?

Q. How you prepared your test material. You didn't just put some flour in gasoline? A. Oh, yes.

Q. Without any coloring matter.

A. Certainly. Colorless gasoline.

Q. How did you prepare the standard by which you were to determine.

A. I used chlorate of potash. That is a yellow chemical, and dissolved five grammes of chlorate of potash in water, and made it up to a liter, with water. Then, from that stock solution, I made a solution of ten c. c., of the stock solution, diluted to one liter. That is an arbitrary standard for color.

Q. I see. That is the method you used in determining the color—the amount of coloring matter in this?

A. The amount of gasoline soluble coloring matter.

Q. Yes? Now, in your investigation of this flour, you determined that it had not been bleached with nitrogen peroxide.

A. It had been bleached by some process that introduced nitrous acid in the flour.

Q. Yes? And what did you determine it was that had introduced that?

A. There are a number of processes that would do that, 325 and it would be impossible, from a chemical examination to say whether it was the Alsop, or the Andrews, or some other, and that, of itself, isn't—

Q. (Interrupting) Well, what I am trying to get at, Doctor, what did you determine, yourself, was the bleaching agent?

A. I didn't determine that.

Q. Well, can you tell the jury, now, what was the bleaching agent? What was it that made this flour turn whiter?

A. The flour had all the characteristics of a flour that had been bleached with nitrogen peroxide.

Q. Are there any other bleaching processes that will bleach the flour—and I don't have reference, now, to the manner of its creation or generation,—but, are there different agents that would bring about the same result?

A. I understand so, but I can't say, from personal experience.

Q. How many agents do you know that would produce the same result?

A. The only agent that I have had personal experience with, is nitrogen peroxide, and aging.

Q. Nitrogen peroxide coming in contact with the water content, and that creating some other agency,—that brings about the result?

A. Well, I don't mean to say that. I would judge the nitrogen peroxide, itself, brings about the result.

Q. I see.

A. There are a great many things taking place, almost instantaneously, and I don't know which comes first.

Q. It nitrogen peroxide a gas?

A. Yes, sir, that is a gas.

Q. I believe you described is as being heavier than air.

A. Yes, sir.

Q. What is its specific gravity?

A. I can't state that, offhand. It is a matter of record in all the chemistry—

Q. (Interrupting) Well, tell us about that. Tell us about how much heavier than air it is, whether twice as heavy as air, or three times or four times.

A. I would not attempt to say, without looking up my book.

Q. But, you know this is much more heavier than air?

A. Yes, because it will pour.

326 Q. That is, it settles?

A. Yes, it settles. It is like carbonic acid. I do not pretend to know the weight, altogether, in those cases. We don't carry those things in our mind.

Q. Now, if it is heavier than air, how does it come that the nitrogen peroxide which they had in this bottle, yesterday, has not remained in the bottle, but has all escaped?

A. I see some of it in there now.

Q. Do you see as much there as you did yesterday?

A. I don't know how much there was, yesterday, I didn't examine it, but it seems to me I see some, there, still.

Q. Well suppose you were to uncork that, would it escape in this room?

A. I would rather wait until I get through my testimony, because it gives me a headache.

Q. I am not asking you to uncork it, but I am asking you if it would do that, if you did uncork it.

A. It may, by the diffusion of gas, in time.

Q. If it is heavier than air, why wouldn't it remain in there?

A. The gases diffuse, as I understand it. You are getting, now, into the realm of physical chemistry, and I wouldn't want to go extensively into that, except to state that it is my general knowledge that gases diffuse, if one is heavier than the other, the same as liquids. They diffuse.

Q. Well, is nitrogen peroxide a volatile substance?

A. Nitrogen peroxide is a gaseous substance.

Q. Well, is it volatile?

A. Well, volatile means, when a solid or liquid goes into a gas, and, if is a gas already, it has reached that condition.

Q. Well will it raise in the atmosphere, and diffuse itself through the room, if we had some of it in a receptacle, here?

A. It might, with time. It might, with time.

Q. But it would take a good long while?

A. It wouldn't go immediately. I don't know how long it would take. Gases diffuse. That is well-known law, that every chemist knows, that that takes place, especially if

327 there are currents of air to help it take place.

Q. Now, the substance which you found in this flour, is what chemists denominate as a nitrite, is it, or nitrite reacting material?

A. Nitrite reacting material—Nitrous acid.

Q. Yes? A. Either free or combined.

Q. Is that a volatile substance. Will it escape?

A. That term includes several substances.

Q. Yes?

A. And that very designation indicates that no one is specifically mentioned.

Q. What is the effect of heat, on it? A. On which?

Q. Nitrites, which you found in this flour.

A. The effect of sufficient heat would be to change, or remove that.

Q. How much heat would it take, to remove them?

A. I couldn't say, where the point would come, where it would be removed. I have tried no experiments on that.

Q. Have you experimented any with flour, to determine what was the effect of heating it, as to what was the effect upon the amount of nitrite that was retained in the flour?

A. I have not. I only know this, that, during the summer weather, the nitrite reacting material slowly disappears, as such. Even during the winter, it slowly leaves.

Q. Well, do you attribute that to the heat?

A. Oh, heat must be a factor, I think. Heat is almost always—I think quite always a factor in chemical changes.

Q. Have you ever examined any of the bread that you baked from any of this bleached flour to determine the amount of the nitrite that was left in the bread, as compared with the amount that was left in the flour? A. Which bleached flour, please?

Q. Oh, any bleached flour. I don't care.

A. I have.

Q. Have you, of the flour that is seized in this case?

A. I have not.

Q. Have you ever taken flour that is bleached in the mill, and where the amount of nitrite found in the flour was substantially the same as what you have testified was found in this baked bread, as the ordinary housewife bakes it, using yeast, let the bread set over night, then put it in the oven and
328 bake,—have you ever examined that loaf, to determine whether or not there was any nitrite present in it?

A. I have examined such bread, but I don't know whether the amount was just the same as in the seizure.

Q. Well, how did the amount which you found in the bread in that case, compare with the amount which was in the flour in that case?

A. Without looking up my figures, or anything of that kind, I would rely upon my general conclusion.

Q. Yes.

A. That from one-third to a half remained in the bread, and, from this degree of bleaching. That, you understand, is just a rough approximate.

Q. A rough estimate?

A. An opinion, based upon experience.

Q. Now isn't it true that where yeast is used in the baking of bread, that this yeast entirely removes the nitrite from the bread, and that none of it is found in the bread afterwards?

A. No, sir, it is not true.

Q. How many experiments have you performed, to determine that question?

A. Quite a good many. I don't know how many.

Q. Well, how many does that mean?

A. Oh, maybe twenty-five, maybe fifty, maybe a hundred.

Q. And you found it in each and every one?

A. Invariably, where there was nitrite reacting material in the flour, we found it in the bread.

Q. Was that in flour which you bleached in your laboratory, or some you got from a mill. A. Both.

Q. When you bleach flour in your laboratory, describe the operation by which you bleach it.

A. The flour was introduced into a tall, two-gallon bottle—a bottle, about so high (indicating)—not two-gallon—two-liter. Wait a minute. I think it was—I don't know the points of a gallon, but I think it was either a two or a four-gallon bottle. At any rate, a bottle so high, about that big around (indicating).

Q. Yes?

A. Flour was introduced into the bottle, and gas was introduced through perforated cork, and run in a certain distance. I did not use, directly, the peroxide gas, but used another gas which, on contact with the water, immediately forms this peroxide. It is all converted into the peroxide, and that is simply a means of making the peroxide gas. We use what the chemists know as nitric-oxide. This has less oxygen in it, than the peroxide, but, immediately on coming in contact with the air, this colorless gas forms the brownish yellow peroxide gas.

Q. Yes?

A. That was introduced into this bottle, and then the glass stopper was inserted, and the whole shaken.

Q. You, then, didn't generate yours by electricity, at all?

A. No.

Q. You used chemicals—liquids?

A. In the laboratory, yes, sir.

Q. Didn't you have any chemical apparatus there, by which you could bleach flour?

A. Unfortunately, all my attempts to secure such apparatus, were without avail.

Q. That was too bad. You have been making experiments on bleached flour for a good many years, haven't you?

A. I wouldn't say a good many years, because I think bleaching has not been in use for very many years.

Q. Well, you have, for the last three or four years, haven't you? A. The last three years, perhaps.

Q. And during all this time, the millers throughout the country have very generally been using this Alsop process, haven't they? A. I think not, sir.

Q. How generally?

Mr. Butler: I think we will object to that.

Mr. Smith: Well, I will withdraw that. I concede that is not proper cross-examination.

The Court: Mr. Smith, would it suit you to stop at this point, or would you prefer to go on?

Mr. Smith: Oh, I would just as soon stop, now.

The Court: We will stop, then, now, till tomorrow morning. You may ask a few questions in the morning, should you
330 so desire. (Addressing the jury) Well, keep in mind, gentlemen, what I have said to you heretofore. We will adjourn until tomorrow morning.

(Adjournment taken as above ordered)

Morning Session.

Kansas City, Missouri, Saturday, June 4, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

Mr. Lyons: If Your Honor please, in this case we desire certain sacks of flour that are now in the possession of the marshal turned over to us for the purpose of making certain further experiments during the course of the trial. I have here an order for the marshal to turn over to us two sack of flour.

The Court: It will not delay the trial?

Mr. Lyons: No, sir.

Mr. Smith: An order covering the turning over of two full sacks to each of the parties, no objection to that.

Mr. Lyons: I can just add that below that order.

The Court: And like delivery of two sacks to claimants.

The Court: The objection made upon yesterday to the question of tasting—I have forgotten, does it include the odor or not—of the bread by the witness Winton, is sustained,
331 and the court will rule in pursuance of that ruling, arguing that the court will not give the time to make the tests.

To which ruling of the court each party excepts.

Mr. Smith: As I understand from that, if either party wants to make any proof as to taste, and so forth, they must make it outside and testify to results rather than to make the actual demonstration here.

The Court: That is well stated.

Mr. Lyons: Well, if your Honor please, will we not be in this position, that if we make certain tests outside of the courtroom that we can exhibit them here if we so desire.

The Court: Oh, that may be, of course we will cross that bridge when we get to it.

Dr. A. L. Winton, in continuance of his cross-examination, further testified as follows:

By Mr. Smith:

Q. Just one or two questions this morning, Professor. This nitrite or nitrite reacting material that you say you found in the flour, is that an organic or an inorganic nitrite?

A. It is my opinion that it is largely the free nitrous acid, and not combined at all, that is an inorganic, wholly considered an inorganic acid, but if it is combined it might form organic or inorganic combinations in the flour.

Q. My question is to get your opinion, which is it, an inorganic or an organic nitrite?

A. It is my opinion that it is not a nitrite or a nitrate, but it is a free acid, quite usual.

Q. Well, is it your opinion, then, that there is not in this flour what you call nitrite?

A. I have no evidence that there is any nitrite in the flour.

332 Q. In the flour? A. But such may be present.

Q. But you are not prepared to say that there is in this flour any nitrite at all?

A. I am not prepared to say that the nitrous acid is combined to form nitrites.

Q. Are you prepared to say to this jury, that in this flour which you examined which was seized under the writ in this case, there is present any nitrite. I think that ought to be answered, yes or no.

A. I am not prepared to say that there is any nitrite, but there is nitrous acid.

Q. Now you tested the gluten of this flour, I believe you said? A. Yes, sir.

Q. Really I don't know whether you said you tested the gluten of this particular flour or of others?

A. Well, of other flours I was testifying to.

Q. You didn't test the gluten of the flour that has been seized? A. I did not personally.

Q. So you are not prepared to say anything as to its strength or volume? A. Not personally.

Q. In the glutens that you did examine did you test them for strength or volume or both?

A. For physical characteristics as determined by the feeling in the hand, and not by expansion, or anything of that sort, with special apparatus.

Q. Did you test them for and weigh the gluten to determine the relative weight, before and after?

A. The amount, the weight, yes, sir.

Q. Which, weight or volume? A. Weight, weight.

Q. Volume you did not? A. Volume I did not.

Q. For strength you did not?

A. No, except in this way, not quantitatively, merely the judgment of the strength from the usual pulling and feeling tests.

Q. Well, you simply pulled and felt of it with your fingers?

A. Yes.

Q. Well, did you test its strength by any appliance by which you could determine accurately just what [is] strength was? A. No, sir.

Q. So your judgment as to the strength of it is simply that which you formed by fingering it or handling it with your hands or working it with your fingers? A. Yes, sir.

Q. Now, in making this test where you simply worked the dough with your fingers did you have samples of both the bleached and the unbleached flour from the same mill and the same grade of flour?

A. In the case of this seizure?

Q. No, sir.

A. In other cases, yes, sir, and the same, bleached and unbleached.

Q. Well, was that bleached in your laboratory or by the mill? A. In our laboratory.

Q. Your laboratory, and in bleaching in your laboratory about what amount of flour would you bleach each time?

A. Bleach usually one or two kilograms, that is, two and a half to five pounds.

Q. That would measure in volume about how many quarts?

A. Two kilograms would be—I can only give you a very rough estimate on that.

Q. I think the jury will get a better idea if you give it in pints and quarts rather than kilograms.

A. Kilogram, often use about four and a half pounds of the flour, a pound in a pint, it would perhaps be four and a half pints.

Q. Or two quarts, or a little over two quarts?

A. Oh, something of that sort, of course.

Q. That is about the amount that you ordinarily use when preparing for an experiment in your laboratory, was about two quarts, or such a matter?

A. That was the usual amount we used in bleaching.

Q. Now, when you went out in your laboratory to bleach that, you made your bleaching agent by the use of chemicals and not by the use of electricity? A. Yes, sir, that is true.

Q. Now, would you put that flour in a closed bottle or jar or receptacle? A. Yes, sir.

Q. And then would pour the bleaching agent into the jar? A. Yes, sir.

Q. What kind of a receptacle did you use?

A. Oh, like this, quite like that, only it was larger.

Q. I don't know what you mean by that; you mean that large bottle that is closed?

A. Yes, sir; I think it was about twice as large or half again as large.

Q. As it, and in that you would put the amount of flour you indicated? A. Yes, sir.

Q. And then you would force the bleaching agent into that?

A. Through a tube.

Q. Going into it? A. Yes.

Q. Now that bleaching agent, as you forced it into that, could you see it, the bleaching agent? A. Oh, yes, sir.

Q. Very distinctly? A. Oh, distinctly enough.

Q. Well, was it the color of the nitrogen peroxide that was exhibited to the jury here during the progress of this trial?

A. Yes, sir.

Q. Its color was as distinguishable as that, was it?

A. I think so; of course it depends on whether it mingles with the air.

Q. Yes, but when it was forced into the bottle which contained the flour, its color was more or less as the nitrogen peroxide that has been exhibited here to the jury, or substantially so?

A. It would when it first came out of the tube, but not when it was mixed with the air. In making these tests I always noted the color of the gas as it came in contact with the air, to make sure that everything is right, but after it mingled with the air I couldn't see it any more.

Q. When it was forced into this glass bottle or receptacle in which the flour is contained the cork or stopper was in the bottle?

A. Another cork or stopper, not the glass one but the one used to close this.

Q. So as to make it air tight or substantially so?

A. Reasonably so.

335 Q. Now, then, did you shake it up? A. Shook it up.

Q. How long did you keep it in there?

A. Oh, just a few moments, a few minutes.

Q. Well, that may mean ten or may mean thirty?

A. Not over five minutes.

Q. Well, what would be your judgment as to the length of time you subjected your flour in the middle of this water in the bottle—five minutes? A. Five minutes.

Q. Maybe a little more?

A. I don't think so, I would always pour it out.

Q. You did not keep a record of the time?

A. Oh, I figured on five minutes.

Q. You figured on keeping it in five minutes. A. Five minutes.

Q. And then you removed the cork and took out the flour?

A. Yes, sir.

Q. Now, what chemicals did you use to prepare this nitrogen peroxide?

A. That is made from iron chlorid, and hydro-chlorid acid; it was freed from any possible acid by means of caustic soda that removes any hydro-chlorid acid, some that was used in generating, yes.

Q. Now, can you tell the jury how many parts of nitrogen peroxide you had in the receptacle as compared to the amount of flour? A. I might have to do some calculating.

Q. Well, I would like to know because I think it is somewhat material in this case to know the relative proportions between your nitrogen peroxide and the volume of flour that you was bleaching. A. Nitrogen peroxide?

Q. Yes, sir.

A. I used in—of course, I have made a great many different bleaching tests, using different quantities.

Q. Yes, but they were all substantially the same, were they not? A. Oh, no, sir.

Q. All right, give me the range.

A. Some were a hundred times heavier than others; I used all the way in one series of experiments from five cubic centimeters of gas to five hundred, five to five hundred, and
336 in a very recent series, the products of fifteen different mills, I used uniformly twenty cubic centimeters.

Q. Twenty cubic centimeters of gas to the volume of flour that you had in there? A. To a kilogram of flour, that is.

Q. So in performing these last tests you used twenty cubic centimeters of gas to a kilogram of flour? A. Yes, sir.

Q. And kept the flour in this closed receptacle exposed to that for a period of about five minutes? A. About five minutes

Q. And then it was after having done that, that you made your tests?

A. Made them the next day, it was my opinion that the gas might remain mechanically commingled with the flour, and I

always save it till the next day so as to let any that would go off, go off.

Q. But in the other tests that you made and from which you have derived the knowledge which has enabled you to testify in this case and on which you have based your testimony, you say all the way from five cubic centimeters of gas to five hundred cubic centimeters of it in bleaching the flour that you had in the receptacle? A. Per kilogram of flour.

Q. Yes, sir, per kilogram of flour.

A. If I used two kilograms I used forty cubic centimeters; but let me state that I have not based[by] conclusions on those experiments alone, because afterwards I repeated similar experiments using gas generated by the Alsop bleacher, and in that case got all these results which corresponded in every respect with those that came by bleaching in the laboratory.

Q. Yes, but in bleaching in your laboratory you have used from five cubic centimeters of gas to five hundred cubic centimeters of gas to the kilogram of flour? A. Yes, sir.

Q. And at the time of those experiments you kept the flour contained within the glass receptacle with the cork in it, making it substantially air-tight? A. Yes, sir.

Q. And you kept the flour exposed to that solution, or whatever you may be pleased to determine, for about five minutes?

A. Yes, sir.

337 Q. Sir? A. I will state that.

Q. Now, have I stated the facts correctly as to what you did?

A. You have, I think, if I may allow just one explanation.

Q. Well, I am trying to get the facts, and that explanation may follow, let's get the facts, are those the facts?

A. That is a fact, but if I made this explanation it will make the facts clearer and more exact.

Q. Let's have it, we want all the light we can on it.

A. I would say that immediately on shaking the flour with this bleaching gas, the reaction appeared to be complete.

Q. Yes, sir.

A. The additional shaking after the first two or three jolts was for the purpose of getting every possible trace of it absorbed so I could get my results more comparably.

Q. Yes.

A. Bleaching seemed to effect immediately.

Q. Yes, sir. A. The color changing at once.

Q. By immediately you mean within fifteen seconds or twenty seconds? A. Well, almost a few shakes, and then look at it.

Q. But in order to make sure that every particle was bleached and that it absorbed all you could, you kept it there for five minutes?

A. Not so much to have it every particle bleached but as to have a definite time and to get as much out of that gas as I could.

Q. Well, whatever the purpose was, or whatever your view was in doing it, the fact is that you kept it subject to that treatment for about five minutes, didn't you?

A. It was shaken for about five minutes.

Q. Yes, how often would you shake it during that time?

A. Oh, shake it, keep it a-going.

Q. I see, and then was it that same flour, bleached in that method, that you bake into bread and made determinations?

A. Yes, sir.

Q. Now, does the relative amount of nitrogen peroxide as compared with the amount of water contained in the
338 flour have any effect upon the value of it, on the net substance that is formed by the contact?

A. It must have moisture in order to bring about the reaction forming nitrites and nitric acid. If the flour was absolutely dry I would suppose that the reaction would be different. However, I have never encountered that condition in practice.

Q. I see. Then you are not prepared to say as to whether or not the relative amount of the nitrogen peroxide of the water would have any effect upon the nature or substance formed by their coming in contact?

A. That question would involve a knowledge of what actually performs the bleaching in the fat. I may say that there are two distinct processes going on. One is the bleaching of the coloring matter with the fat, and the other is the formation of nitrous and nitric acids. Of course there are other changes that take place also. Now, to what extent those two processes are related I am not prepared to state at this time.

Q. I see.

A. If the peroxide directly bleaches the gas the color in the fat, the matter of moisture may not be so important.

Q. I see.

A. If, however, it is the nitrates or the nitric acids that do the bleaching, why, naturally, their formation from the moisture with the flour becomes an important item.

Q. Yes, sir.

A. But practically the flour always contains moisture.

Q. Yes, yes, we all agree to that. Now, in your investigations you have found that unbleached flour when exposed to the air and stand for a length of time, whitens, haven't you?

A. When stored in bags slowly whitens.

Q. Well, suppose you put an amount of unbleached flour in a pan, put it out on the top of a building and away from smoke, or things of that sort, but where it would simply be exposed

to the pure air, and permitted it to remain there for a time, one or two days, four days, isn't it true that that flour would be whitened?

A. I never tried the experiment in that form, but I would not expect that you could note any whitening whatever in that length of time.

339 Q. Well, suppose it remained there for four days?

A. I would not expect that I could determine any whitening.

Q. How long would it have to remain there before, in your judgment as a good chemist, you would see a whitening?

A. I would say that I have never performed this experiment. My experiments have always been in bags.

Q. Well, how long does it have to be stored in bags before you can notice the whitening process of nature?

A. I gave my figures yesterday as to the rate of—

Q. I didn't take them down if you did. I just want to get from you a general statement of the length of time that would elapse before this whitening—whether it would be visible when carried on by nature?

A. It is a very slow operation. I will say that in my experiments I exaggerated the conditions, the flour was stored in small sacks, twelve pound sacks, in a well ventilated room.

Q. Yes.

A. And I am strongly of the opinion that if the flour had been stored under conditions very nearly like those encountered in the trade, that the bleaching would not have gone on—the natural bleaching from the air would not have gone on so rapidly, I think.

Q. We are taking up time, what I want to get at is a statement about the length of time it takes before Nature's laboratory makes it visible?

A. That depends on the conditions.

Q. Well, under such conditions as you investigated how long did it take?

A. After five weeks I was able to note a whitening.

Q. All right, you tell the jury what it was.

A. After two weeks I would question whether the whitening had been demonstrated there.

Q. All right; but in five weeks it was demonstrated, wasn't it?

A. In five weeks it was demonstrated to my satisfaction, and there was a slight whitening.

Q. I wish you would tell the jury what it was that whitened that flour? A. I don't know.

340 Q. That is all.

A. The air, it was the air passing through the flour, but what the process is I can't say.

Q. In preparing your nitrogen peroxide used as a bleaching agent did I understand you to say that you used—what was it—tell us again what was it you used to create your bleaching agent.

A. I made—I took an oxide from iron chloride, hydrochlorid acid and nitrate of potash, I omitted the nitrate of potash, possibly, of course you could not get the nitrogen without something that contained it; it was formed by the action of hydro-chlorid acid and iron chloride, ferrous chloride, on the nitrate of potash.

Mr. Smith: I think that is all, your Honor.

Redirect Examination

By Mr. Butler:

Q. Referring to the tasting of bread to which I had addressed a question shortly before the end of the examination, I will ask you to tell us, not by conclusion or by comparison, good, better or worse, but by description of the taste itself, how each specimen of bread made from bleached flour tasted, and then tell us how each specimen of bread made from unbleached flour tasted?

Mr. Smith: I think I object to this as incompetent, irrelevant and immaterial and not a matter of expert testimony and as not proper rebuttal. What may suit one man's taste would be entirely disagreeable to another man's taste.

The Court: That is not the question. You may answer it.

Judge Helm: I desire to make this further suggestion, that this witness has already testified he didn't see the bread and he couldn't tell whether he was tasting it.

The Court: He may answer.

[Q.] In the case of patent flours, fifteen of which were examined both bleached and unbleached, and when fresh and after aging five weeks; in every case the bread from the unbleached flour had an agreeable flavor.

341 Mr. Smith: Now, Your Honor, I move to strike that out as not responsive and coming exactly within Your Honor's ruling that he couldn't tell.

The Court: Yes, I held rightly, or wrongly, that what, in my judgment is admissible as evidence—

Mr. Butler: I did not intend, Professor Winton, by my question to call for—

Mr. Smith: No, I don't think you did; I don't think you intended it that way.

The Court: By the words "how it tasted", he doesn't mean agreeable or disagreeable; he does not mean that.

Witness: What it tasted like.

By Mr. Butler:

Q. If you are able to tell by any word descriptive of taste, how the bread made from the bleached flour tasted, and then how the bread made from the unbleached flour tasted, do so. The ruling of the court, so you may understand it, is that we are not characterizing the taste by good, bad or indifferent, agreeable or disagreeable or comparatively. You have already told us they tasted differently. Now, we want to have you tell how it tasted, is what I am trying to get at, if there is any way that you can do so.

A. The bread made from the unbleached flour had a taste which I associated with vegetable oils, a nutty taste, a distinct flavor which I can best describe as nutty, whereas the bread made from the bleached flour lacked flavor; I was impressed by the absence of such a nutty flavor, and there was also in many cases a distinct flavor which was foreign to the bread made from the unbleached flour.

Mr. Smith: Now, Your Honor, I think that comes within Your Honor's ruling and I move to strike that out; it is making a comparison between the two.

The Court: Yes.

Mr. Smith: That is not admissible under the court's ruling.

The Court: The last part of the answer will go out.

342 Mr. Butler: The words "that was not present in the other", under Your Honor's ruling, that may go out.

The Court: Yes, sir.

Witness: May I add the words "foreign flavor"?

Judge Scarritt: I move to strike that out because we don't know what foreign is; we are not foreigners.

The Court: Well, I assume that he didn't use the word "foreign" as in some foreign country, but foreign in the ordinary acceptance of the term. It may stay in.

By Mr. Butler (resuming):

Q. Now, in your cross-examination by Mr. Smith attention was called to the fact that the quantity of nitrite reacting material which you found in the specimen of flour contained in Exhibit 8 being exhibit 8, was 1.8 part per million and you said that that was computed as nitrous acid; it would be about

eight parts to the million, I think I am right as to the substance of your testimony in cross-examination now, am I?

A. It would be between three and four times as much computed as nitrous acid that would be, I think, seven of—

Q. We will not trouble in getting the small figures. Explain how that is true, explain this method of chemical calculation, so that this nitrite reacting material computed as nitrite which was about two, but if computed as nitrous acid it would be about eight, as I understand it?

A. May I give an illustration?

Q. Certainly, just make that so we can understand. All lawyers and jurors do not, as a rule, have to do with chemical calculations.

A. Anyone who has been engaged in farming and in the country where the soil requires an artificial fertilizer is familiar with the term.

Mr. Smith: I think I will object to that as not an answer to the question, as incompetent, irrelevant and immaterial, it is a dissertation upon fertilizing in the soil; that is not responsive to this question.

Mr. Butler: Oh, no, it is simply an illustration of the quantity, amount of nitrite.

The Court: He asked if he could give an illustration, and Mr. Butler said "yes, you can", and you gentlemen were silent until you got down to a given point.

Mr. Smith: If I thought it at all pertinent I would not object to it but I don't think this is.

The Court: Well, you need not give it, then.

Q. (By Mr. Butler) Well, explain it without an illustration, define it, they do not like to have you show the one that you started upon I don't know what it is, but if you can tell us how that comes about, do so.

A. Nitrogen peroxide, nitrous acid, nitric acid, the different nitrates and nitrites all contain nitrogen. The amount of this nitrogen, however, differs in these different products. Now, in the flour our nitrogen peroxide goes, as we know, into at least two different combinations—nitrous acid and nitric acid. Now, both of these contain nitrogen, but different quantities of nitrogen; also the amount of nitric acid, made from a given amount of peroxide, the amount by weight, would be different than the other acid; the amount of nitrous acid would be different from the nitric acid. Therefore as we don't know in the flour the exact amount of each of these that is present, it is impossible to calculate such and such an actual weight of nitrite reacting

material present. That acid indicates—I can approximate it but in order to be more exact, we put our results in terms of nitrogen, which is present in all of them; we can say positively there is 1.8 parts of nitrogen existing in the combination of nitrous acid or as nitrite. We can show there is so much nitrogen existing as nitrous acid, nitric acid, and nitrates provided we could determine those altogether; that is not true in this case. We say nitrogen, nitrous nitrogen, nitrogen as nitrous acid, because that is true, but, nitrogen does not exist as such in the flour or in the bread; it is combined to form this acid or this

nitrite, which are from three to five times heavier, those
344 are the products actually present, but this is merely a means of expression. Now, it would be foolish to say that the nitrogen existed as such in the flour; a great many thousand or hundred thousand times perhaps as much nitrogen exists in that flour in other forms; nitrogen exists there in the formation of the protein, the gluten; there is perhaps in that flour two or three per cent of that form of nitrogen; there is this similar amount of nitrogen existing in these other forms. We can calculate the per cent to the gluten more accurately, and thus give you the actual weight of gluten per cent. We cannot do that so accurately in the case of the nitrous acid and the nitrites, because we don't know the relative proportion. It is a little difficult matter to explain, perhaps, but I will say this is merely to be exact.

Q. Now, if computed as nitrous acid can you tell us how much there would be in a fifty-pound sack of flour, in this fifty-pound sack of flour, Exhibit 8? A. Nitrous acid?

Q. Yes.

Mr. Smith: I object to that as not proper redirect examination, and not a matter proper for the jury. I was not permitted to get a computation from him yesterday, that is what I tried to get, but it was shut off.

Mr. Butler: If it involves a long computation we will have it made and put in by direct answer. I will withdraw the question for the time being, and have the computation made later so as not to delay.

The Court: You gentlemen can figure it up and talk to the jury, and they know how to figure as well as we do.

A. I have not the nitrous acid calculated, but I have a nitrite of soda corresponding calculated.

Q. Well, what would that be?

A. That would be three grains in a fifty-pound bag of nitrite of soda, nitrate of soda is not present in the flour.

345 Q. That is on the basis of the quantity recovered?

A. That is on the basis of the quantity that I recovered with the methods that I used.

Q. Now, how much nitrogen peroxide was used in the flour seized as compared with the amount represented by your recovery, can you tell us that?

A. From extensive experiments it is my opinion that only about one-fifth of the nitrogen peroxide used goes into this combination of nitrous acid as found by me in the flour at the time the analysis was made. I mean that the nitrous hydrogen found is only one-fifth the amount which was probably used.

Q. Well, now, on that basis how much gas in volume would be employed—was employed to bleach the sack of flour seized and examined by you?

A. On that basis three hundred and fifty cubic centimeters, about one-third of a quart of pure nitrogen peroxide was used.

Q. Yes, now, the gas contained in Exhibit 6 when it was brought into court and exhibited to the jury and poured from the bottle containing it into a beaker, was a dilution of about four to one? A. Yes, sir.

Q. Of the volume in size or quarts of gas as the same dilution Exhibit 6 was when it was brought into court was employed to bleach the bag of flour Exhibit 8 which was shipped to your laboratory?

A. I calculate the amount is about one and three-fourths quarts.

Q. A little less than half a gallon?

A. A little less than a half a gallon when the gas diluted, the four parts of water—of air.

Q. As was the gas brought in by Professor Shepard according to his testimony?

A. About this bottle full, about two and one-third times.

Q. You said in cross-examination that the ash indicated the grade of flour, as to whether it was patent or not, and that it was impossible to make a ninety per cent patent. Will you explain to the jury what reference the ash has to the quality of flour as being patent, straight, clear and the like?

346 Mr. Smith: I object to that as not proper redirect, he having fully gone over it in his examination in chief, and immaterial.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. The heart of the grain contains less ash than the outer layers.

Q. Yes, you understand that I do not make my question clear; I mean the quantity recoverable, as to the quantity recoverable in patent flours, straight flours and clear. Now, the source of the ash I think you explained, if my memory is right, in direct examination, and we will not go over that again.

A. The patent contains the smaller amount of ash, the straight somewhat more and the clear still more.

Q. Now, as to be the amount of each, the range.

A. The patent contains less than forty-two or forty-three one-hundredths of one per cent; the straight and the clear contains larger amounts varying according to the condition; I have no distinct limit on these products. The straight flour from one mill, according to one practice, might have more or less than the clear flour from other mills with other practices, but in the same process, and the same mill, and using the same weight, the clear would have more ash than the straight.

Q. Now, in your cross-examination you said that chemical analysis would not disclose the method employed to make the nitrogen peroxide gas for the purpose of affecting bleaching?

A. It would only disclose the nitrous acid and when the flour had been bleached artificially.

Q. Does it make any difference to the flour as respects the effect upon it how the medium NO₂ in produced, whether by chemicals or by the flaming arc or any other method?

A. No, sir, it does not.

Q. Some of the cross-examination of Mr. Smith, was
347 directed to the amount of nitric reacting material found in the bread. I would like to have you, if you have the data at hand, to give us specifically some of your observations in that regard, showing the quantity of bleaching reagent used, amount of nitric reacting material recoverable from the flour, recovered from the flour, and the amount recovered from the bread?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial and not tending to prove any issue in this case.

The Court: What is the question?

Mr. Butler: I asked him to give us some instances of his examination with respect to nitrite reacting material from the bread, first the amount,—in bleaching—the amount recovered from the flour and recovered from the bread.

The Court: He may answer.

Mr. Smith: I object to it as incompetent, irrelevant and immaterial, and no proper foundation having been laid.

A. I made a great many experiments covering this point; I summarized the result, and I can give the summary or specific instances.

[A.] Well, very good.

A. I have summarized the result in this way: That from one-third to one-half of the nitrous acid present in the flour was found in the bread.

Q. Now, as to the quantities, give us the range of quantities that you found in the flour, and use the same terms of expression that you did here in describing your analysis of the particular flour that you examined from this seize, and how much you found in the bread—different quantities?

A. I have here a case where the bleaching gave in the flour 1.2 parts of nitrous nitrogen.

Q. Per million?

A. Per million, whereas in this case it was 1.8, that is quite a deal less. In the bread I found .52 parts, in other words, $\frac{5}{12}$ ths was found in bread made by the so-called
348 domestic method. I have another case where the bleaching was higher, where approximately $\frac{15}{34}$ th was found in the bread.

By Judge Helm:

Q. Can you state these all in decimals?

A. I have not calculated them, sir. The flour contained 3.4; the bread contained 1.55; in this second case that bleaching, however, was higher than in this particular seizure.

Q. What has been the extent of your experimentation upon this point, to-wit, the amount of nitrite reacting material found in flour and found in bread?

A. Made a great many.

Q. For what period and about how long?

A. Over two years, over two years, and have used flour bleached in the laboratory, have used flour bleached in the mill using the Alsop gas, in the bleacher, and have also examined flour made bleaching by the Alsop process in mills as conducted commercially.

Q. Now, I would like to have you give us the amount of nitrite reacting material found in the bleached flour that was not bleached in your laboratory, but that you procured in commerce and from mills, and the like. What I want to get at is the range and parts per million, the same terms that you expressed it in this analysis here, and how flour bleached ordinarily runs, as found in the market?

Mr. Elliott: In order to keep my memorandum straight, are these figures based on laboratory basis, now?

Mr. Butler: I will bring that out clearly. I cannot answer it positively, no; he used in this bread test just described,

flour from various sources, laboratory flour or that bought in the market, bleached flour that he got from the mill. Now, my question is, I want to get at the range of nitrite reacting material found in bleached flour from the mill, and in commerce, according to his experience, I want to get the range of that.

Judge Scarritt: Don't you remember going over that in your direct examination?

Mr. Butler: I think I did not just in that way, Judge Scarritt.

349 Judge Scarritt: That is my recollection.

Mr. Butler: I think he showed varying proportions in the bread, but I don't think I limited my question to the particular amount of nitrite reacting material.

Judge Scarritt: I am not sure.

Mr. Butler: I made a note of it, I know.

Judge Helm: Will you kindly have the witness state whether the examples he has just given were made upon bread baked from flour bleached in his laboratory or by—

Q. Yes, where you give particular instances.

A. Bleached in the laboratory.

Q. Both instances? A. I have here.

Q. Now go on.

A. I have here a case where the flour contained 1.88 parts of nitrous nitrogen per million.

Q. Where bleached?

A. Was bleached by the Fremont Milling Company, Fremont, Nebraska, and the amount of nitrous nitrogen was a shade more than this case in question; and in the bread I found 1.15 parts per million, in other words, a little more than half was present in the bread.

By Mr. Elliott:

Q. May I ask you to give the number plain again, we couldn't hear you, what was the amount of the flour?

A. 1.88.

By Mr. Butler:

Q. And in this case it was 1.08, in this case seized, here on trial?

A. And in the bread, always calculated to the same basis as the flour, calculated to the original flour, 1.15 in the bread.

Q. Now, what I wanted to get at, if you can tell us from your memorandum or conclusion, the range of amount in the

amounts of nitrite reacting material found in flour other than the laboratory bleached flour, that is, the flour which you purchased in the market and procured from mills with the bleach?

A. One-third to one-half.

Q. That is the amount still remaining in the bread?

A. Still remaining in the bread.

Q. And I want to find out whether one part to the million ranged from one to ten or forty or one to two or six recoverable in the flour just as you found it in the market and got it from the mill. Do I make myself clear, Doctor?

A. Just again, if you please.

Q. You examined, you say, a great deal of flour?

A. Yes, sir.

Q. That was not bleached in laboratories, but bleached flour bought in the market, and bleached flour procured from the mills? A. Yes, sir.

Q. And you determined in each instance the amount of nitrite reacting material in such flour?

A. Yes, sir.

Q. I want those determinations so as to give the jury an understanding of about how the thing runs, as far as your observation goes?

[Q.] Well, I have given one, I don't know.

Q. Well, now, give us the range. You said you examined a good many?

A. I have to study these results. I have a number, perhaps, I better give then in each of these specific cases.

Q. Yes, give the mill and all.

A. Another flour from the Updike Milling Company, Omaha, Nebraska, nitrous nitrogen in the flour 6.25; in the bread 5.13—5/6th, approximately in the bread I have already given one from Fremont, Nebraska. I have another, 5.36, in the flour.

Q. What mill was that?

A. That is the Fremont Milling Company again, Fremont, Nebraska, another flour; it was a low grade flour. The first was an 85 to 90 per cent patent, so-called; the second from the Fremont mill contained in the flour 5.36, and in the bread 3.50, somewhat more than half. I have another from the Wells-Abbott-Nieman Co., Schuyler, Nebraska, the patent, in the flour, 1.25; in the bread .62. Another 60 per cent patent from the Southwestern Milling Company, Kansas City, in the flour 0.20; the bread 0.19, very low bleaching. Waggoner-Gates Milling Company, Independence, Missouri—

By Judge Scarritt:

Q. These are all bleached at the mill, as I understand?

A. All bleached at the mill. In the flour 1.10; in the bread .64. These are all the results I have before me at this time.

351 Q. Now, with respect to whether or not your experience was uniform or varied in the cases where you found nitrite reacting material in the flour, state whether or not it was also always found in bread or only sometimes found in bread.

A. Invariably found it in the bread.

Q. And now the methods of making bread are only the two which you have described—the Koellner method?

A. Those are the only methods we used. In this method it was the Koellner employed flour from the mill.

Q. Now, I am not sure whether it has been made clear—I have gotten through with the table, I think—I am not sure that it has been made clear what is meant by nitrite reacting material, nitrous nitrogen, and the various terms that have been employed to designate what may or may not be the same thing. I wish you would explain that to the jury.

A. Perhaps if I put the formulae on the blackboard.

Q. Very good, any way, so as to make it perfectly clear if you can and do it briefly.

A. Peroxide is NO_2 , that is to say that there is one part of nitrogen and two of the oxygen.

Q. Now, that is the gas that Professor Shepard brought in here? A. That is the gas.

Q. And that is the gas made by the flaming arc?

A. The flaming [ard.]

Q. And that is what makes that electricity and conducted to the flour on the motors in that country?

A. Now, nitrate of soda is NaNO_2 .

Q. Na stands for sodium, and NO_2 ?

A. Those two together, NO_2 .

Q. Part of the nitrous acid that condenses with the soda?

A. There we have a combination with minor substances.

Q. Now, nitrate of potassium, write that so as to illustrate it.

A. Nitrate of potassium would be KNO_2 . Now K stands for potassium. Now nitrous acid, which really should
352 come first, is that where we have hydrogen in place of the sodium; the acids have hydrogen combined with the acid.

Q. Nitrous acid is HNO_2 . A. HNO_2 .

Q. Brought in contact with sodium K the potassium leaves, makes it a nitrate of sodium; is that the point?

A. That is the point.

Q. That is the chemical action?

A. Now the quantities of these different elements vary, but each element has its amount, for example, nitrogen combines here in these three, combines in relative proportions of 14, 23 and 32, but these are constant proportions; these can be looked at as relative. It can thus be seen that the amount of nitrogen in these different compounds, varies with compound. Now we have in our flour we are known to have those and where you have others still, so it is impossible, not knowing the exact proportions of these two, to figure out just the per cent of nitrous acid in the flour, that may be partly combined. It is my opinion it is largely free; if we could assume that it was absolutely all free then we could calculate our results as nitrous acid, and we would have figures absolute of about 7 parts per million of nitrous acid; that I think expresses very closely to the truth.

Q. Well, I think that will be all.

A. We speak of nitrogen for the sake exactness, because that is a more definite thing.

Q. Now something was said in cross-examination as to the manner of bleaching in the laboratory and you described that more fully so as to indicate the amount of the gas compared with the flour and the degree of dilution of the gas. I understood you to say sometimes you made it strong, and sometimes you made it stronger, and sometimes you made it weak and sometimes you made it weaker. Now I want to get the range of that so as to [to] give us the effect of varying amounts, and first of all I want you to make it perfectly plain how you did it?

A. In the last series of experiments I performed, where the amount of nitrogen peroxide used, introduced into the
353 flour, approximately two parts per million of nitrous nitrogen, the proportion of gas to air was about as 40 to 4,000, as I remember the capacity, this is an approximation, of about 1 to 100; in other words, the peroxide was diluted twenty-five times more than that which was exhibited in this bottle. I do not give this as an exact figure, but as an approximate one. It does not take into account the air that is disseminated through the flour, the flour itself, holds a great amount.

Q. Now the color of the dilution after the gas has diffused in the air in the bottle, not when the gas was introduced, but after it had diffused in the air in the bottle, then the color of the dilution, if it had one?

A. I did not observe it, I could not see the color after the dilution. I will say that it was again—it was difficult to make the observation because of the flour that will adhere to the sides of the flask, but it was certainly a very faint yellow if yellow at all.

Q. Yes. Now what is this thing here next to me, what is the name of it? A. This apparatus?

Q. Yes.

A. That I do not happen to be familiar with that in all its details.

Q. It is not yours, it is not the kind you employed. I think, although I am not sure, whether you stated the amount of NO₂ employed to bleach the flour in "Exhibit 8" according to your determination the examination was made 12 days after the bleaching, and you found 1.8 of nitric reacting material computed as nitrogen. Now what I am trying to get at is the amount of gas that was used first undiluted, and then in terms of Dr. Shepard's dilution here that was used to bleach this flour in parts of a million, or if you can tell us readily the amount in volume of such volume as Dr. Shepard brought in here that was actually used in that sack of flour?

A. According to my experiments, the amount used to bleach a flour to that extent would be approximately 20 cubic centimeters per kilogram of flour.

Q. Well, I know, but how much would that be, doctor, 50 pound sack of flour in quarts, if you can tell us?

A. That would be calculated to the 50 pound sack, about somewhere around 75 cubic centimeters I had the calculation.

Q. About how many quarts or pints?

A. That would be of the strong gas about $\frac{1}{7}$ or $\frac{1}{8}$ of a pint diluted.

Q. That is of the undiluted gas?

A. Of the undiluted gas. Pardon me, if I go back over again, in that calculation I have calculated the amount corresponding to that in the flour 1.8, and I think I have already given this in total; I think I have given this in total yesterday.

Q. I did not hold it in mind until I made a note or notes this morning. Is the capacity of the flour to take up gas, I believe that is the expression, used to take up the gas, limited or unlimited. What I want to know is this, how much gas would be taken up by flour and how long does it take it to do it about?

A. The flour takes up a prodigious amount of the gas; for example, they used 500 cubic centimeters per kilogram, which is greatly over-bleaching the product the gas disappeared, and the flour took up large amounts of nitrous acid, of course, there must be some limit to this. I made no special experiment to determine how complete the absorption was.

Q. In your cross-examination you said that in making this laboratory bleaching you shook it up about five minutes or kept it in the bottle for about five minutes. The amount of bleaching re-agent employed such as you customarily employ for your light bleaching, would effect a result about like the

flour seized here. How long would it take flour to absorb the gas or take up the gas, whatever the proper expression may be, in the bottle?

A. It would not take more than five minutes; probably, very much less.

Q. But you could not approximate the time definitely?

A. Why, I don't think to get all absorbed that would.

Q. You measured the quantity introduced into the bottle, and the idea was to get that quantity into the flour to
355 see what percentage that whole quality in the flour would be?

A. That was our idea, and also specially to make determinations comparable so far as possible, we have to have some definite time and we want merely the comparison.

Q. For instance you put in one quantity and got it all in, you increased the quantity to double, you want to get that all in? A. So as to get some kind of a comparison.

Q. Chemical analyses, as I understand it, have among others two problems to determine, first if the known substance is there, and next how much of it? A. Yes, sir.

Q. One is qualitative analysis and the other quantitative, as I understand it? A. Yes.

Q. How may the existence of nitrite reacting material in the flour seized here be disclosed, that is analytically; describe a test or tests if there are more than one?

A. A very convenient method of testing the flour is to slick up a dilution, take a glass plate or board, smooth it up with the flour subsidiary, and then put on that flour a drop of the so-called Griess solution, that is a solution containing several chemicals which with nitrous acid or the nitrite produces a red color; unbleached flour does not give a red color.

Q. This test bears the name Griess after the man or one of the men who got or invented or found it out?

A. That is it.

Q. And this presence of nitrites is disclosed by the color; what is the color of this Griess solution?

A. This Griess solution is colorless or nearly colorless.

Q. Is it clear like water?

A. Clear like water, a clear solution.

Q. Since this flour in "Exhibit 8" has been brought to the court room have you taken some out of it and applied the Griess test? A. I have taken a portion from the bag.

Q. That was the bag that was shipped to your laboratory which you brought back here?

A. The bag shipped to my laboratory and which I brought with me here and slicked it up on a plate, and added
356 a drop of the Griess solution. In a few minutes I obtained on that flour a deep red color, perhaps as intense as the red on that label at least as striking at that.

Q. What effect will a drop of such transparent fluid have upon flour in taking nitrite reacting material as respects color reaction, if any?

A. It gives no red color; it gives practically, it gives the same color as water would if added to the flour, a color that is recognized when moisture penetrates solid substances, no red color.

Q. Is this method that you have described a reliable qualitative test for nitrite reacting material in flour?

A. It is a reliable method. I have applied it many, many times to flour of known origin, and in no case has it given misleading results.

Q. Now, as to the quantitative analysis you say you found one part and eight-tenths per million; that is weight, is it?

A. Weight against weight.

Q. Parts of flour. Now, how do you get at the quantity, is that by weight or is it by some other recognized methods?

A. It is by weighing; we weigh out a certain quantity of the flour, put it into a bottle like this, then add to it a measured, carefully measured volume of distilled water.

Q. That is you weigh the flour?

A. Weigh the flour and measure the water.

Q. Now, how do you tell how much nitrogen is in it or nitrite reacting material?

A. Shake that up, shake that up violently for five minutes is my practice, in that way causing the flour to thoroughly mix with the distilled water; then filter in order to get rid of the starch and the other matters of the flour that don't go into solution, filter through a paper, through a filter paper, porous paper, that allows the liquid to run through but keeps back the solid substances; use always a paper which has been proven to be free from contamination with nitrites; sometimes paper kept in a laboratory where fumes are circulating will take on contamination; and
357 after filtering we take a measured quantity of what runs through. In our case we used two hundred cubic centimeters of water; that is about one-fifth of a quart, and after filtering we took from that filtered liquid, fifty, that is one-fourth of the amount; so whatever amount we find in that fifty multiplied by four, will give the amount that was in the whole flour used, twenty grams, in my practice, or two-thirds of an ounce. To this liquid, this clear liquid, were added a measured quantity of this Griess reagent, Griess Ilosvay reagent, if one is to be examined—these are the names of men, of foreigners who devised this testing; at the same time a measured quantity of a solution containing a known amount of the nitrite is treated in the same way with the re-agent. The two

are allowed to stand side by side until they take on the maximum depth of red color. If pure water were used no color would appear at all. If an unbleached flour were used no color would appear at all in the liquid; but the bleached flour, and with the standard dilution used for comparison, a red color appears, more or less intense, varying to deepest or deep red, a red which might be compared to that of red ink or red liquor. By comparison of these two tubes, or others that we know the standard, one learns the amount of the nitrite nitrous nitrogen in the flour in a quantitative way.

Q. So, then, the color measures the amount, measures the weight?

A. The color measures the amount, and we have standards of color that serve for comparison.

Q. Is that a recognized way that is recognized by good chemists on the subject as a proper method to find out how much of nitrite re-acting material is in a given substance like flour or anything else?

A. It is a recognized method that is used all over the world for the determination of nitrites.

Q. And for the determination of the weight, color, measurement?

A. In a quantitative way.

Q. I think that is all.

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Recross Examination

By Mr. Smith:

Q. In giving Mr. Butler your figures on the amount of nitrites which you found in the bread you read from a statement, didn't you, or took your figures from a statement?

A. From that table.

Q. The table I have in my hand; that is prepared by you?

A. That was prepared by me.

Q. And these observations in it here are made by you and under your personal examination? A. Yes, sir.

Q. Now all of the flours you referred to here were bleached in the mill, were they? A. In the table, yes, sir.

Q. In this table?

A. Yes, sir, they were all bleached in the mill.

Q. You collected samples of bleached and unbleached flour?

A. Yes, sir.

Q. And then you made tests of the bleached and unbleached flours for the purpose of determining a great many different things, all of which you noted on this?

A. Quite an extensive examination.

Q. The notations you made here are accurate?

A. Yes, sir.

Q. Made by you personally?

A. Checked by me personally.

Q. So that you have personal knowledge of these facts that are indicated on this exhibit? A. It is.

Q. Then you caused some bread to be baked? A. Yes, sir.

Q. And you made examinations of the bread afterwards?

A. Yes, sir.

Q. Now, was I correct yesterday in understanding you to say that in bleached flour the acidity was increased or diminished?

A. Increased.

Q. The acidity in bleached flour is increased. Now, in making this test you examined these flours for the purpose of determining their acidity, did you?

A. We determined the acidity, yes, sir.

Q. Now I call your attention to the first one you have got there, the Updike Milling Company, Omaha? A. Yes, sir.

Q. Under the head of unbleached flour you have acidity given as .045, haven't you? A. Yes, sir.

Q. And the bleached flour is identically the same, isn't it? A. Yes, sir.

359 Q. No increase of acidity there?

A. None brought out by the determination.

Q. All right, all right, and you were examining these flours to determine the acidity, weren't you, among other things?

A. We were making the determinations and studying the results afterwards.

Q. Well, you made them accurately?

A. Oh, we made them as accurately as we could do it, but I will say—

Q. All right, don't explain too much, you will do that later on, but your examination of the Updike flour, both bleached and unbleached did not disclose to you a particle of difference in acidity, did it?

Mr. Butler: Wait a moment. I state to the court I think it would save our time in a matter of this sort if the witness would be permitted to explain his answer.

The Court: Perhaps you better wait till you re-examine him.

By Mr. Smith:

Q. Now, I call you attention to the next one, Conrad-Heisel, Plattsmouth, Nebraska. There you had samples of bleached and unbleached, didn't you?

A. That notation was not read.

Q. Answer my question, but I am going to read it. You had samples of his flour both bleached and unbleached?

A. I had samples of the flour.

Q. Now, in your examination of the acidity of that, didn't it show of the unbleached .112, and of the bleached .085. That was not increased, was it? A. No, sir.

Q. Decreased, wasn't it? Answer the question, it was decreased, wasn't it? A. No, sir, not by—

Judge Scarritt: Repeat that please, you used the same term in both.

By Mr. Smith:

Q. In the unbleached flour the acidity, as shown by this memorandum you have was .112? A. Yes, sir.

Q. And in the bleached flour it was .085?

A. No, sir; the result—

360 Q. And in the next one, the Fremont Milling Company, the unbleached flour showed acidity .040, didn't it?

A. Yes, sir.

Q. In the bleached .031, wasn't it?

A. Those are the results.

Q. That is a decrease instead of an increase, isn't it?

Answer the question.

A. I could not answer it in that form. It is a lower result.

Q. All right. A. If you put it that way.

Q. And the next was a sample from the Fremont Milling Company in which the unbleached showed an acidity of .148, and the bleached an acidity of .130, didn't it? A. Yes, sir.

Q. That was not an increase, was it?

A. It was a lower figure.

Q. Yes, sir, yes, sir, a lower figure. The next one was the Brown Milling Company, where the unbleached showed an acidity of .067 and the bleached showed an acidity of .067, just the same, wasn't it? A. Yes, sir.

Q. Neither an increase or decrease by that bleaching, was there? A. Both the same results obtained in that case.

Q. The next one you have, Wells-Abbott-Nieman Company of Schuyler, Nebraska, where the unbleached flour showed an acidity of .071, and the bleached showed an acidity of .067; is that right? A. These are the figures.

Q. No increase there in acidity, was there? Just answer the question, please. A. I can't—

Q. You can't answer? A. I do not call it an increase.

Q. No, I don't think anybody would. The next is J. H. Snell, of Ashland, Nebraska, his unbleached flour showed an acidity of .040, and the bleached shows an acidity of .040, didn't it?

A. The results as there stated are the same in both cases.

Q. They are the same. The next is from the Southwestern

Milling Company of Kansas City, the unbleached showed an acidity of .108? A. Yes.

Q. And the bleached showed .108, didn't it? A. Yes, sir.

Q. No increase, was there?

A. The same results recorded in both cases.

361 Q. Weren't you endeavoring to record the accurate results?

A. As accurate as that method would give.

Q. Yes, sir, well, were you using an old second-hand method?

A. Using the very best method we could find for that purpose.

Q. I suppose so, yes, sir. The next is August J. Bulte Milling Company, Kansas City. The acidity shown of the unbleached is .121 and the bleached .133; that is an increase, isn't it?

A. The result is slightly higher in the second case; I don't know as it is an increase.

Q. Where your record shows an increase in acidity, is that true? A. I don't think it is true, put in that form.

Q. Well, it is the first one, this memorandum you prepared, which shows an increase, isn't it?—Yes or no, please.

A. I don't think it shows an increase.

Q. All right, all right; we'll try and let the jury see the figures. The next is some other milling company in Kansas City, where the unbleached showed an acidity of .112 and the bleached an acidity of .108; isn't that right according to your figures? A. Yes, sir.

Q. The Shawnee Milling Company, Topeka, Kansas, where the unbleached shows an acidity .112, and the bleached an acidity of .112, exactly the same, aren't they?

A. Those are the same figures.

Q. Now, coming down to the Waggoner-Gates Milling Company, at Independence, Missouri,—the next is some milling company here in Kansas City; you had a number of samples from them, didn't you? A. Yes, sir.

Q. The unbleached showed an acidity of .103, didn't it?

A. Yes, sir.

Q. .103? A. Yes, sir.

Q. And the bleached exactly the same, wasn't it?

A. The same figures recorded.

Q. And the next the unbleached shows an acidity of .099?

A. Yes, sir.

362 Q. And the unbleached an acidity—the bleached an acidity of .102; that is a slight increase, isn't it?

A. Higher, the returns are higher in the second case.

Q. The next one, from that same milling company here,

showed an acidity of .103, unbleached; and the bleached .103, just exactly the same? A. The same results.

Q. You obtained these results, didn't you? A. Yes, sir.

Q. And recorded them? A. Oh, yes.

Q. And thought they were accurate when you put them down, didn't you?

A. As accurate as the method would give.

Q. All right. Then you had some from the Waggoner-Gates Milling Company, Independence, Missouri; the unbleached in that case shows an acidity of .094, didn't it? A. Yes, sir.

Q. And the bleached showed exactly the same, didn't it?

A. Yes, sir.

Q. And you had another sample from them, where the unbleached showed exactly the same, namely, .094 and the bleached exactly the same, .094. Now in that whole record you made there there is just two which showed a slight increase, isn't there; I have not counted them, but there are some that show an increase, I read them correctly?

A. You read them correctly.

Q. Now, after you had taken these several samples you made bread out of them, didn't you? A. Yes, sir.

Q. And you examined the bread afterwards for the purpose of finding the nitrite contained in both the bleached and the unbleached, didn't you? A. Yes.

Q. Now, I call your attention to the bread which you made from unbleached flour which you obtained from Plattsmouth, Nebraska, and ask you if it is not true that according to your determination the bread which you baked from the unbleached flour showed a re-action for the nitrite?

A. That was not bleached from the Alsop process.

Q. I say it is not, the unbleached showed a reaction for 363 nitrites there, the unbleached?

A. We put it unbleached, but it was not unbleached.

Q. You have recorded it as unbleached.

A. It had not been through the machine for the bleaching, but it was taken in a mill contaminated with the bleaching gases, and therefore had acquired accidentally the bleaching. It is a thing that almost invariably happens when flour is stored in a mill where bleaching is carried out.

Q. But in all of these cases where you have recorded them as unbleached, you mean that none of that flour has gone through the agitator, through which the bleached flour goes, don't you?

A. I mean it was not intentionally bleached, but we found it practically impossible, in many cases to get the unbleached flour from mills where a generator was in operation, without having it in a degree bleached. The proof of that was absolute; there is no question about it, whatever, and so the so-

called unbleached there is not fair for comparison with the other.

Q. Well, you made this tabulation, didn't you?

A. We made the tabulation and we recorded every result that we got, and it is necessary to make this explanation.

Q. Well, all right. A. In order to show the fact.

Q. And this flour, making comparisons between what you denominate bleached and unbleached flour, didn't you?

A. We denominate them bleached and unbleached, it needs an explanation.

Q. It requires an explanation?

A. It requires explanation.

Q. Well, I think that is all right. Now, referring to the Fremont Milling Company, and the flour which you have denominated unbleached, after you made bread out of that, you found, .47 as sodium or as nitrite nitrogen contained in that bread, didn't you?

A. Yes, sir, but the results obtained on the flour show that the flour had been bleached, whether by accident or design.

Q. Well, when you were making your tabulations why didn't you get unbleached flour?

A. We did the best we could to get them, but we did not have the mills under our control, and were obliged to depend on the courtesy of mill owners; it is a difficult matter, and we hope later to equip a mill for ourselves, and make this bleaching under conditions, so we may be absolutely sure that the unbleached flour was so in fact, but we were unable to secure, to purchase it to perform these experiments.

Q. Yes, sir. Next as to the Fremont Milling Company, now unbleached flour, when you baked that into bread and examined it for nitrites you found it showed nitrite contents of 1.54, didn't you? A. Yes, sir.

Q. And in your tabulation here—

A. So-called unbleached.

Q. Well you don't mark it as so-called unbleached, do you; you mark it as so-called unbleached, do you; you mark it unbleached, don't you?

A. We mark it unbleached, but that is to be explained as not being intentional bleaching.

Q. Yes, and coming now to that which is obtained from the Shawnee Milling Company under the head of unbleached, when you baked that into bread you found nitrogen re-action as indicated by .59, haven't you?

A. That is true, it was marked unbleached, and it was the best we could obtain from that mill, but analysis of the flour

showed that, in fact, the flour was not unbleached, it had been accidentally bleached.

Q. When did you make this tabulation of figures here?

A. About two years ago.

Q. About two years ago? A. More or less.

Q. You have had this in your possession ever since?

A. Yes, sir.

Q. And you have had occasion to refer to it at different times? A. Oh, occasionally.

Q. I see. Now, do you have any objections to its being marked as an exhibit and offered in evidence here?

A. Counsel has the decision on that.

Mr. Butler: All right.

The table referred to was thereupon marked by the stenographer "Defendant's Exhibit 204".

365 Witness: I would say that I would like to check any clerical errors. I have another copy here, a typewritten copy; we can supply you with that if you could leave me this original.

Mr. Smith: We will offer this in evidence, and then later on we will compare and substitute the copy.

The Court: It will be admitted subject to corrections.

Mr. Smith: That is it, it is offered in evidence.

Mr. Butler: The other side had a copy of this for the last two years. Mr. Elliott has a copy of it.

Witness: Allow me to keep this original and compare it with one of the typewritten copies, I have other notes on this table.

Mr. Smith: This will be returned.

Witness: I have a kind of an index on this.

Mr. Smith: We offer in evidence Exhibit 204 as part of the cross-examination.

The Court: It will be admitted.

Witness: I will say that that contains notations purely for my own information, index and one thing and another, appearing on the table.

Mr. Smith: I am perfectly willing that a copy should be substituted.

Q. Now in making this baking, or in baking this bread, what kind of an oven did you use?

A. A portable oven, electric oven.

Q. How is it heated? A. By electricity.

Q. Well referring, now, to these bread making experiments that you testified to, was that bread all baked on the same day, I mean what you tested, that is what I am referring to?

A. Why, the comparative tests were made, yes, sir, they were made on the same day.

Q. Well how many different kinds of flour did you bake into bread on the same day?

A. Oh, as a rule only one or two, possibly three or four; took pains not to have mixed different lots in the oven.

366 Q. I say when you came to the stage where you did the testing how many did you test in one day?

A. As a usual thing only tested one or two, I mean comparison, made one or two comparisons of it.

Q. Now, referring to this Griess test that you referred to, how minute particles will this test determine or detect? It is an exceedingly delicate test, isn't it?

A. It is a delicate test.

Q. The most delicate known to chemistry, isn't it?

A. Oh, I wouldn't say that.

Q. What is there that is equal to it in detecting nitrites?

A. In detecting nitrites it is probably the most delicate test, but then there are—

Q. And it would detect them in what minute quantities?

A. Oh, it would detect on much smaller quantities than given in this flour; I would not want to say the exact limit; it is used a great deal in water analysis.

Q. In this case we have got one of a fraction per million. Now, have you got it down to a point where it would—oh, a quarter of a part per million, it would detect that, wouldn't it?

A. It would detect that under favorable conditions; it might be in a substance where we would get a clear liquid, or something of that kind, but it would.

Q. Do you know what would be the weight of a quart of that gas you have denominated as NO₂ on the blackboard?

A. I don't know whether I have this calculated; but I could calculate it.

Q. You can't give it now? A. I may find it here.

Q. Well, if you don't remember let it go. A. A quart?

Q. If you don't know, Professor, let it go.

A. I think I could give it to you.

Q. Well, all right, if you can give it what is the weight of it? A. A quart of nitrogen peroxide?

Q. Yes, or the gas NO₂, I don't know whether it is nitrogen peroxide.

A. That would weigh for a quart approximately 1/15 of an ounce, a quart of it would weigh.

367 Q. I want to call your attention to this publication that has been marked "Defendant's Exhibit 205", issued by the United States Department of Agriculture, Division of Chemistry, Foods and Food Adulterants. Investigations made under direction of H. W. Wiley Chief Chemist, with the collaboration of K. P. McElroy, W. H. Krug, T. O. Trescot, W. D. Bigelow, and others. Are you familiar with that?

A. I am.

Q. I call your attention to page 1264 of that, reading as follows, I call your attention to the following language on page 1264, and ask you if you agree with what the Department of Agriculture said about this, "A high grade American patent flour, has, approximately, the following composition: Then moisture, proteids, and so forth, ash .50." You agree with that?

A. At the present time I would not agree that that was the highest grade of flour or that it was a patent. I don't know what the practices were at that time.

Q. Do you agree with the Department of Agriculture and Dr. Wiley and Mr. Bigelow and others that a high grade American patent flour has, approximately, in ash, .50?

A. I don't think it has at the present time.

Q. I see. Well, do you think it did have in the year of Our Lord, 1898?

A. I had no observations made from that year.

Q. Is this W. D. Bigelow whose name appears upon this and which I read, the same one of those whom you sent one sack of this flour?

A. I don't know whether I sent it to him; I sent it to Washington to the Bureau at Washington.

Q. Well, do you know of any bulletin—this is referred to as Bulletin No. 13, do you know of any bulletin issued by the department at Washington under the head of "Food and Food Adulterants by H. W. Wiley, chief chemist, W. D. Bigelow and others, which has in any wise reduced the ash content of a high grade of American patent flour since its publication?

A. I do not quite understand what you mean by reduced.

368 Q. Well, this .50, if you have reduced it to .40 I want to see what is the authority for the reduction.

A. Common experience.

Q. Your common experience?

A. Yes, and experience gained by talking with other flour experts all over the country.

Q. I see. You think that with the improved machinery and improved flours and improved skill, that the method as

acquired since the year 1898, or twelve years ago, that the ash now obtained from flour is less than it was then?

A. I don't say so; I don't know anything about the mill conditions at that time.

Q. Do you now?

A. Not as a miller, I don't pose as a practical miller.

Q. I believe that is all.

Redirect Examination

By Mr. Butler:

Q. Now, referring to the table 204 in your testimony, either direct or first cross, you stated, as I understood you, and as you appear to have been understood by the gentlemen on the other [—] that acidity in flour was increased by treating it with the Alsop process? A. Yes, sir.

Q. On cross-examination your attention was called to a paper marked Exhibit 204, to certain statements thereon, showing acidity of bleached flour and of unbleached flour. In some instances, most, I think it appears most, called attention to, at any rate by Mr. Smith, it appears that the acidity was less in the case of the bleached flour, in a number of cases, than it was in the unbleached flour?

A. Very slightly, yes, for the most part within the limits of experimental error.

Q. What is meant by that as a phrase? Mr. Elliott used at one time in the cross-examination of Dr. Shepard the phrase "within the limits of experimental error." What does that mean?

A. It means this, that such a thing as absolute accuracy in chemical science cannot exist; there is always an experimental error. If we weigh out a certain quantity of a material, our weight will not be absolutely and mathematically the amount we are working for. Of course, with delicate balances we can get more closely to the true fact, but we
369 have never been able in any observation of weight or measure to gain absolute accuracy. We may have a ruler, which is based on a careful standard, but yet by means of a microscope one could find that that was not and could not be absolute perfection. So, in every process we are obliged to allow a certain range for error, especially with analytical processes. Now, we have some methods that will give us results that are accurate only to within one-half a per cent; other methods that will give us results accurate within two-tenths of a per cent, one-tenth of a per cent, and so on down. Taking these two specific methods the determination of acidity in flour by the method there outlined, and the determination of nitrous nitrogen, we have in one case, the case

of the determination of acidity, a method that is, as we use it, that would be called quite accurate, quite accurate; it should give results at the most within a few hundredths of a per cent; but when we have the Griess test, we are dealing with a more accurate method and a method which we were obliged to use in making these determinations of nitrous nitrogen. Now, I will say the comparisons of acidity in that table as determined by that method throw no light whatever on that increase in acidity as due to nitrous acid, for the reason that the method is not delicate enough on the one hand, and second, because the method of taking samples in the mill was not as accurate as we employed in our laboratory. If I may be allowed to explain that latter point a little more in detail I will say that these samples were taken in the ordinary process of milling. We could not ask the miller, and they were always very courteous, to shut down his mill and give us absolute control; and so we took the sample as best we could from the stream unbleached; when I say unbleached, you understand, I mean not intentionally bleached, before it got to the bleacher, although it may have been contaminated with the bleaching gas. Then later on after the inspector, or whoever took the sample, came down, perhaps several stories to the place where the flour was coming out, he took another sample, or we took another sample of the stream after
370 bleaching. Now, it was a part of the same flour before and after bleaching, but from the stream it may have changed somewhat in composition. In our laboratory we take the whole quantity of flour, put it on a paper, and mix it for fifteen minutes, in order that we might be sure that our two portions of flour, that unbleached and bleached, would be absolutely the same as near as was possible to make it, we could get naturally closer results, so we are working in this case with a method that was not perfect in sampling the flour, and second, we were working with a method that is not sufficiently accurate to bring out this increase in acidity that was brought out by deduction.

Q. The limits of experimental error then I take it from your explanation, they are with respect to different chemical tests or operations, is that true?

A. Oh, very, very greatly, sir, greatly.

Q. Now, I would like to ask you to give to the court and jury the basis for your conclusion that the bleaching of flour by the Alsop process increases acidity in the flour, and that there may be no misunderstanding, you may tell what acidity you referred to if there be two kinds or different kinds of acidity.

A. The natural—

Q. In other words, I want the foundation for the opinion that you have expressed, that acidity is increased by this process.

A. The acidity of natural flour is a natural acidity, usually attributed to the organic acid, lactic acid, the acid which forms in souring the milk from the sugar of the milk, so that can form in the flour from a very small quantity of sugar present in the flour; it is a harmless acid, in fact a benefit that is much sought after by many for human foods; those who drink buttermilk, for example, get the acidity. The acidity brought about by bleaching is that of nitrous and nitric acids, two acids, two acids of very great power, nitric acid dissolving metals and corroding the skin, burning holes in clothes, and so on, and the nitrous acid having also—

Judge Scarritt: If Your Honor please, in the interest of time I object to this because it was all gone over
371 in his direct examination.

The Court: Yes, he went over that subject matter.

By Mr. Butler:

Q. Now, I wanted the foundation for your opinion. You have explained to us sufficiently, both on direct and cross-examination, the difference in these two kinds of acidity. Now, I want the foundation for your opinion that the bleaching of flour by the Alsop process increases acidity.

Judge Scarritt: We would make the same objection, because he stated that as a qualification for the testimony that he introduced on his direct examination.

Mr. Butler: I think the Judge is in error about that.

The Court: I understand, but as he does, I think that is plain.

Mr. Butler: I am not quite sure that I—I am very sure that it was not completely covered.

The Court: Well, we conceive, you must, we are getting along awfully slow. We must not get into a contest of who has the last word with the witness. Of course all you gentlemen are aware, or [worse] when I was practicing law, every lawyer wants the last word, but in this case I think I will take the last word.

Mr. Butler: Your Honor will remember on this specific point, I have no doubt that if ask permission of the court that the witness may explain this very matter.

The Court: When a lawyer says that by oversight he has passed something by, of course the court always takes a

lawyer at his word and allows him to go into it. In this case Mr. Smith examined this witness from the table, and the witness was somewhat insistent upon the right to explain; Mr. Smith was equally or more insistent that he should not explain. Now, then, Mr. Butler is having him make the explanation, that ends it. Now, gentlemen of the jury we are going to adjourn until Monday morning.

372 At this point the further hearing of this cause was adjourned until Monday morning June 6, 1910, at 10 o'clock A. M.

Pursuant to adjournment, court met at nine o'clock a. m., Monday, June 6, 1910, and the trial of said cause proceeded as follows:

Mr. Butler: On the cross-examination of the witness, A. L. Winton, Mr. Smith called his attention, and introduced in evidence, a statement, on Page 1264, of a publication of the United States Department of Agriculture, Division of Chemistry, foods and food adulterants, investigations made under the directions of H. W. Wiley, Chief Chemist, with the collaboration of K. P. McElroy, and W. H. Crow, T. C. Tresty, W. B. Bigelow, and others. The statement so introduced, was as follows: "High grade patent flour. High grade American flour has approximately the following compositions. Among the things enumerated, as ash, expressed in percentage, 0.05." In connection with that evidence, the government offers in evidence, from the statements made in connection with that offer, and the data referred to in such statement, upon which the conclusion is based, and said to be based, as follows: "From a careful study of the foregoing data, it is possible to arrive at a correct idea of the composition of typical American flour, of the classes indicated above." Then, follows the statement. Now, the "foregoing data" referred to, or some of them, at any rate, are found on Page 1254 of the same publication, under the caption "Class One, composition of patents, wheat flours". Then follows a long list of samples of flour, designated by laboratory numbers, and a state-
373 ment of the percentage of ash in each sample. We offer in evidence that table, together, with the numbers of each sample, in so far as respect the ash content.

Mr. Smith: I believe there is no objection.

The Court: Well.

Mr. Smith: All of that part, is offered, that appears on Page 1254, showing the ash content.

Mr. Butler: Yes, Yes, every one relating to ash content.

Mr. Smith: Yes.

Mr. Butler: And this table is the data referred to.

Mr. Smith: All right. No objection.

Mr. Butler: And the average of the samples, as shown by the table, is 0.44, and it includes a sample numbered 12,549. The average is based upon, in part, and includes a sample known as 12,549.

Mr. Smith: Now, pardon me. Your offer takes in all of that page, so far as it applies to the ash in patent flour. Am I right?

Mr. Butler: Yes, and the sample numbers.

Mr. Smith: I have no objection to that part going in. Everything.

Mr. Butler: On page 1241, this sample, 12549, is described, giving the name of the manufacturer. It was made in Guatemala. It would not appear to be an American flour at all. The ash content in that particular flour was very high, and, therefore, increases the average, being 0.89. And in connection with each of the laboratory numbers, we offer in evidence the description of each number, as contained in the same bulletin, commencing on Page 1238.

Mr. Scarritt: What is the lowest number, there, Mr. Butler?

Mr. Butler: In the detail?

374 Mr. Scarritt: The highest was 89. What is the lowest?

Mr. Butler: The first one I see is 37. I will read them all—the ash content. 0.37, 0.39, 0.45, 0.45, 0.36, 0.42, 0.43, 0.33, 0.43, 0.40, 0.37, 0.37, 0.50, 0.49, 0.45, 0.40, 0.49, 0.47, 0.48, 0.40, 0.39, 0.46, 0.48, 0.47, 0.39, 0.41, 0.38, 0.41, 0.51, 0.46, 0.89. That is Sample Number 12-549—The Guatemala flour.

Mr. Scarritt: 33 is the lowest?

Mr. Butler: I am not through, yet, (continuing) 0.38, 0.44, 0.59. The number of that sample is, 12926, and the description does not indicate that it was a patent flour. 0.44, 0.42, 0.41, 0.59, which is Sample Number 15,961. 0.53, and 0.48, making an average of 0.44.

Mr. Scarritt: 33 is the lowest?

Mr. Butler: I think 33 is the lowest, Judge.

Mr. Scarritt: And 89 is the highest.

Mr. Butler: And, of the same report, on Page 1227, a part of the tables commencing on Page 1226, and extending over Page 1227. Under the caption "Analysis of the product of roller milling", and, under the caption "Finished flour", the ash content is indicated for various grades of flour, namely, baker's, patent, and low grade.

Mr. Smith: I object to this, Your Honor, as incompetent, irrelevant and immaterial, it being what purports to be an analysis made by some person, of some particular flour, what, we don't know, and here he is pretending to give his conclusions. It is incompetent, irrelevant and immaterial, as being hearsay testimony and no proper foundation has been laid, and not having had chance to cross-examine the man who made these particular figures.

The Court: The same publication?

375 Mr. Butler: Yes, and relates to ash.

Mr. Scarritt: Don't relate to this flour, though. It relates to baker's patent flour.

Mr. Smith: Three grades.

Mr. Butler: Oh, no, you misunderstood it. There is a grade known as baker's grade, and patent, as well. That is a subject touching which Mr. Smith offered evidence out of this book, and then the low grade?

Mr. Scarritt: Are you offering the patent grade?

Mr. Butler: I am offering the three, to show the relation.

Mr. Scarritt: We object to the three.

The Court: Objection is overruled.

Mr. Scarritt: We save an exception.

Mr. Butler: The ash content, as indicated, is as follows, under the sub-caption "Finished Flour", baker's 0.62, patent, 0.39, low grade, 1.99.

Mr. Scarritt: Does that show the kind of wheat?

Mr. Smith: No.

Mr. Scarritt: We object to this, further, if Your Honor please, because it does not show the kind of wheat that the samples were taken from.

The Court: Objection overruled.

Mr. Scarritt: Exception.

Andrew S. Mitchell, called as a witness on behalf of the government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Dr. Mitchell—

A. (Interrupting) Mr. Mitchell, please, Mr. Butler.

376 Q. Mr. Mitchell, what is your profession?

A. I am a chemist, and pharmacist, by training, and a chemist by profession.

Q. And your employment?

A. I am now chief of the St. Paul laboratory of the Bureau of Chemistry of the United States Department of Agriculture.

Q. And your work, has to do with the examination of foods?

A. It does.

Q. How long have you had to do with that kind of work, whether for the government or elsewhere?

A. More or less, since 1888, and exclusively, for eight years—practically exclusively for eight years, before entering this service, about since two years ago last July, in the federal service.

Mr. Scarritt: I didn't catch the employment—where it was.

Mr. Butler: He is in charge of the laboratory of the Bureau of Chemistry, of the Department of Agriculture, at St. Paul.

The Court: St. Paul?

The Witness: St. Paul, Minnesota.

Mr. Butler: His position corresponds to that of Dr. Winton, at Chicago.

Q. Before you were employed by the government, what was your employment, with respect to this character of work?

A. I was, for nearly eight years, the state chemist of the Dairy and Food Commission, State of Wisconsin, and the chemist of the State Board of Health. I taught chemistry before that, in Milwaukee high school—physics—to some extent, and, five years, or a number of years—I think five years, I was professor of chemistry and toxicology in the Milwaukee Medical College and School of Dentistry.

Q. Did you receive the flour contained in the government's Exhibit 9, same being a sack which was testified by the inspector Daniel M. Walsh, to have been sent to you from the place of seizure, here in Castle, or Greencastle, in the State of

377 Missouri?

A. I did. I didn't hear Mr. Walsh's testimony, but I received the flour.

Q. That was his testimony. When did you receive that sack of flour? A. On April 13, 1910.

Q. Was it under seal? A. It was.

Q. Under the seal of the department, with Mr. Walsh's signature?

A. Mr. Walsh's signature, and the date, April 11, 1910. It came by the Adams Express Company.

Q. Did you analyze, or make examination of some of the flour in that sack? A. I did.

Q. You may tell the jury what you found.

A. I found 2.3 parts of nitrogen, as nitrites, per million, in this flour. That is computed as nitrogen peroxide, and 7.5 parts per million, as NO₂. I found an ash content in this flour of .53 of one per cent.

Mr. Smith: How was that?

Mr. Butler: .53.

A. (Continuing) .53 of one per cent.

Mr. Butler: Have you got it, Mr. Smith?

Mr. Smith: Yes.

The Witness: .53.

Mr. Smith: Yes. I thought you said 5.3.

The Witness: If I did, I reversed my terms.

Mr. Smith: All right, I understand, Doctor.

By Mr. Butler:

Q. Are you familiar with the method of examination for nitrite reacting material, which is employed by Professor Winton? A. I am.

Q. Do you sometimes employ the same method?

A. I do. I generally do for control and comparative purposes.

Q. Now, the amount he found in the sack shipped to him was 1.8 parts per million? A. Yes, sir.

378 Q. Computed as nitrogen? A. Yes, sir.

Q. And you found 2.3 parts per million, computed as nitrogen? A. Yes, by a slightly modified method.

Q. Did you make an examination and analysis of the flour, by the same method that Professor Winton employed.

A. Very similar method.

Q. Did you examine by two different methods?

A. I did.

Q. Did you get the same result by two different methods?

A. No. I got 1.6 by a method very similar to what Dr. Winton used. No two men work just exactly alike, I think.

Q. 2.3 by the method—

A. (Interrupting) By the method upon which I relied.

Q. The test was the Griess-Ilosvoy reagent, was it?

A. Final—the comparison of the colors by that test.

Q. I mean final. A. Yes, sir.

Q. Did you make an examination of the flour, itself, to determine its quality and grade?

A. Such an examination—

Q. (Interrupting) Other than chemical analysis, I mean.

A. Such an examination was made by Mr. Bailey, yes.

Q. Have you given any particular or special study to the effect of bleaching flour by nitrogen peroxide gas, mixed with air? A. I have.

Q. And during what period of time?

A. Well, the experiments were conducted mainly at the time, about two years ago. I have made examinations of very many bleached flours since, but not for purposes of investigation, so much as to see whether or not they were so treated.

Q. Has your examination and study of this matter enabled you to determine whether or not the treatment of flour by this process adds to or imparts to or mixes with the flour any substance? A. I have. It does.

Q. What is the fact in that regard?

A. It does mix with it substances.

Q. What substances?

A. It mixes with it nitrogen peroxide. This enters the flour in various forms.

Q. And in analysis it is disclosed as a nitrite reacting material, as has been heretofore described, I take it.

A. It does.

Q. Have you been able to ascertain whether or not it has any effect upon the quality or strength of the flour?

A. It has.

Mr. Scarritt: We object to that as a conclusion, if your Honor please.

Mr. Butler: This is intended to be merely preliminary, by way of qualification.

Mr. Scarritt: We don't want a conclusion, as preliminary qualification. The subject of inquiry is, as to what happened when he made these examinations and these tests, and not what effect it had, in his opinion, on the strength or quality of the flour. That is for the jury to decide. We object to it for that reason.

The Court: You may answer.

The Witness: Read the question.

(Question read)

A. I have.

By Mr. Butler:

Q. What is the fact in that regard?

Mr. Scarritt: Same objection.

The Court: You may answer.

Mr. Scarritt: Same objection.

A. I did not catch the question.

By Mr. Butler:

Q. What is the fact in that regard? What effect does it have upon the quality or strength of the flour?

A. It injures the quality and strength of flour.

Q. Now, how?

Mr. Scarritt: Now, wait a minute. We ask that that be stricken out, for the reasons given in the objection to the question.

The Court: The answer may stand.

380 Mr. Scarritt: Save an exception.

(Question read)

By Mr. Butler:

Q. How, and in what respects, I intended to ask you.

A. It injures, first, the flavor of the flour.

Mr. Smith: Wait. I move to strike that out, as incompetent, irrelevant and immaterial, and being merely the conclusion of the witness, on what is or is not the right sort of a flavor. I think that comes squarely within the ruling of Your Honor last week.

Mr. Butler: I don't think so.

The Court: The answer may stand.

Mr. Smith: Save an exception.

By Mr. Butler:

Q. Now, what other respect, if any?

A. It alters the physical and chemical properties of the food of the flour. It introduces mineral acidity into the flour. It affects the quality and strength of the gluten, in degree as the bleaching exists.

Q. What effect upon the gluten?

A. It affects the color of the gluten. It weakens its relative strength.

Q. How does it affect the color?

A. It changes its normal bright yellow color, to browns,—various shades of browns, and finally to blues, and grays, in some instances, where the bleaching is rather excessive.

Q. And how weakens the strength of the gluten? What do you mean by the strength? In what particular?

A. Its toughness and elasticity.

Q. You spoke of its injury to the fat. A. I did.

Q. Or, that it affected the fat. In what way, and how?

A. It affects the fat, first, to destroy its natural golden-yellow color. It renders it more or less solid—or, more solid. Not more or less, but more solid in consistency. It entirely changes its smell and taste. It alters its iodine number.

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Q. What is the iodine number?

A. The iodine number means, merely the weight of iodine which is absorbed by a given weight of fat, under certain conditions, in percentage. It will absorb less iodine, in percentage, than it would before being bleached.

By Mr. Butler:

Q. That is, fat of flour unbleached will absorb a certain amount of iodine?

A. Yes, sir, and after bleaching it will absorb less.

Q. Are you familiar with the flour known as "patent flour" in commerce and in the market? A. I am.

Q. What is a patent flour?

A. Patent flour is flour made from the better portions of the wheat kernel, by means of the gradual reduction process. It consists of those streams of flour which are composed of the inner portions of the wheat berry—the white berry—and commingled with such other streams as may form in the reduction, which are free from the outer coats, and which are free from dirt. It is middlings, ground.

Q. What is a clear flour?

A. A clear flour is the flour which is obtained in the manufacture of patent flour—the rest of the edible flour.

Q. What is that? A. The rest of the edible flour.

Q. After the patent is taken out?

A. After the patent is taken out.

Q. The clear is one of the remnants, or by-products?

A. Not remnants. It is one of the contents. It is formed at the same time.

Q. It is the rest of the flour?

A. The rest of the edible flour.

Q. What is a straight flour?

A. A straight flour is all of the edible flour—it is clear and the patent mixed together.

Q. And baker's grade?

382 A. Baker's grade is not a very definite grade. It may be a very high clear. It is generally very high clear—approximately a straight—certain streams taken out.

Q. Now, as respects the quality of freshly milled flour, as compared with the same flour, all being unbleached, that has been aged or conditioned by storage—any difference in quality,—that is in the color, or flavor, or characteristics if any, and if so what? A. There is.

Q. Describe the difference.

A. The aging or conditioning of flour under proper conditions develops a certain quality in the gluten, which is known as strength. It also develops the flavor to some extent, and it incidentally lightens the color and will lighten the color of the bread, incidentally, that is made from it.

Q. What effect upon the color of freshly milled flour does bleaching, by the Alsop process, have?

A. It lightens the color of one constituent of the flour. It lightens the color of the flour, as a whole. Particularly the fat—the color of the fat.

Q. And as to the degree of bleaching, or lightening of the flour. Does that depend upon the amount of bleaching, or the amount of treatment by nitrogen peroxide gas?

A. It does, so far as the bleaching has to do with the color of the fat, and it depends also upon the time of standing. The bleaching goes on. There is an instantaneous bleaching in the Alsop, or similar processes, due to the immediate action of the gas. Then, there is a continuous action which goes on, which makes the flour still lighten considerably, on standing.

Q. That is, the more bleached, the lighter it gets up to a certain point?

A. Up to a certain point, until the fat is wholly white.

Q. As respects the amount of nitrite reacting material which is recoverable from the flour, how does that compare with the amount of nitrogen peroxide gas employed in treating the flour?

383 A. Well, it is very much less. It, in my method of working, if the work is done upon a flour that is freshly bleached,—by that I mean if I get hold of flour not more than one or two weeks, I can recover, under favorable—under usual conditions, under the first two weeks, I can recover approximately twenty per cent of it. That is, if there is forty parts, by weight, of the gas used in the bleaching, I can recover eight parts as gas—computed as gas.

Q. Expressed in the same terms?

A. Expressed in the same terms, as nitrogen peroxide.

Q. Which, expressed in nitrogen, would be about one-fourth?

A. Would be about less than one-third, I think—divided by 3.3, approximately—3.28.

Q. About one-third, then? Have you made any studies and examination to ascertain whether or not bread made from bleached flour, according to methods ordinarily employed in the making of bread for consumption, whether nitrites or nitrite reacting material, remains in the bread?

A. I have, some that have bearing on that.

Q. What is the fact in that regard?

A. If they are made by a method which I shall designate as the Koellner method, they retain about thirty-five to forty per cent of the nitrites which were in the flour, from which it was made, figured on the basis of the flour, or, they retain about, well, that is the only figure that I have handy.

Q. Well, if made in the ordinary method, for domestic consumption, if there is such a method?

A. Well, pound per pound,—taking a pound of bread and a pound of flour, of course, a pound of flour doesn't go into a pound of bread. There is only about one-third of it—.7 that is flour. You will get, in the bread, approximately twenty—around twenty per cent, of that which was in the flour, pound per pound.

Q. Now, may bread be so made from bleached flour as to leave it in a condition where nitrite reacting material is not recoverable—may the dough be so manipulated, or worked, or treated, as to eliminate the nitrite reacting material that is in the flour?

A. It may be. Bake it in, or bake it out, as I have said.

Q. How?

A. Why, if you give the flour a long fermentation and several kneadings, raising the loaf to a large size, and prick the loaf with pins, as is frequently done, and use a large amount of yeast, in the fermentation, you could bake it practically out. If you don't knead it but once, raise it but once, and keep the volume small, you will have a relatively large amount left in, and particularly if you use a small or an ordinary amount of yeast, you will have a large amount in it. The Koellner method uses a relatively generous amount of yeast, to domestic baking.

Q. How about the ordinary method, or the domestic method?

A. I never have run any of the ordinary. It will be somewhere between the two, I would judge.

Mr. Butler: I think you may cross-examine.

Cross-Examination

By Mr. Smith :

Q. You are not a doctor of medicine?

A. No, sir. Teacher of chemistry and an analytical chemist.

Q. For years you have been making an examination of food products? A. I have. Made thousands.

Q. Has your investigation been limited to any particular kind of food products?

A. No. I have had rather a very broad range.

Q. That has covered fruits, and vegetables, and meats, and so on?

A. Well, only canned fruits. We don't hardly examine apples chemically, for adulteration. They don't adulterate them.

Q. I understand. But has it extended to meats?

A. Meats? No, except for certain preservatives that have been added in certain canned goods, at certain periods.

Q. You have examined flours, of course, for the purpose of ascertaining whether or not they contained nitrites?

385 A. I have.

Q. Now, did you ever analyze any meats, for that purpose?

A. No. Oh, I—no, I never examined meats.

Q. Did you ever make an examination of, say smoked ham?

A. No, sir.

Q. Smoked out on the farm, or smoked in the packing houses,—smoked with a hickory wood fire under it,—to ascertain whether it had nitrite in it?

A. No, but I know smoke has it in it.

Q. Well, do you know, as a chemist, that if hams are smoked in the smoke house, with a hickory fire under it, that those hams would have nitrites contained in them?

A. I never examined, but I know they would have them in the outer coats, and I think it has to do with the preservation of the hams.

Q. Yes, that may be all true.

A. I believe they have.

Q. You believe they have? You don't know that?

A. No, I don't know. I never analyzed them.

Q. Did you ever make an examination of bacon, as you find them on the markets?

A. I have not examined meats, as I tell you, on this subject.

Q. How does it come that in your examining of food products you have examined these meat products?

A. For nitrites?

Q. Yes.

A. Because I have never known that nitrites were added to them.

Q. Well, but you never have examined to find out whether they were or not?

A. No, but if there had been a rumor of any such thing, I would examine everything in reach.

Q. You never heard the rumor that nitrites were contained in smoked ham? A. No, as an added product, no.

Q. Did you ever hear the rumor that nitrites were contained in bacon? A. No, sir.

Q. That is new to you, is it? A. Yes, sir.

Q. Do you want this jury to understand, that, as a chemist—

[Q.] (Interrupting) Oh, your question, again? Did I ever hear the rumor that nitrites were contained in those? Is that it?

386 Q. Yes.

A. Yes, I have heard that rumor, and thought it would be, undoubtedly, in the outer coat.

Q. And you never made an examination to find the amount? A. No, sir.

Q. Never did? So, you are not prepared to say whether the amount of nitrites contained in smoked ham, smoked with a wood fire, under it, and smoked out in the old smoke house,—whether that would contain more or less nitrites than this flour, here? A. I am not prepared to say.

Q. You are not prepared to tell this jury whether or not the bacon you buy on the market, here at Kansas City,—that is, the standard quality of bacon, or the highest grade of bacon that can be obtained—whether or not that contains more or less nitrites than this flour, are you? A. No, sir.

Q. You don't know anything about that? A. No.

Q. Have you ever examined vegetables as they grew, to ascertain whether or not they contained nitrites?

A. No, I have not.

Q. Have you ever examined beets, as they grow, and as they are found on the market, and as they come from the market, and onto your table, to ascertain the per cent of nitrites in them? A. I never have.

Q. You can't tell this jury whether or not there is any?

A. No, sir, I can't.

Q. Have you ever examined celery? A. No, sir.

Q. Lettuce? A. No, sir.

Q. None of those products? A. None of them.

Q. How does it come that in your examination of food products—I will withdraw that. What has been the purpose of your examination of food products?

A. To find out if they were adulterated, substituted, or imitated, or whether they contained any added poisonous or deleterious material, or any substitution. That is practically it—it is adulteration in various forms, to see whether it is adulterated.

387 Q. You regard nitrites as a deleterious ingredient, don't you? A. Always.

Q. Now, why have you not examined any of these meats, to see whether or not they contained this deleterious ingredient?

A. Because I never knew any one was putting them into them.

Q. Well, why didn't you try to find out if they were put in the meat? A. Because I don't believe they are.

Q. Will you make an examination, and come and tell this jury whether or not smoked ham contains nitrites?

A. I believe it does. The smoke contains it, on the outside.

Q. Have you ever made an examination to find out whether the fish that you buy on the market contain nitrites?

A. Well, I have just made a rough test. There was a rumor that the fish that comes to us in barrels contain it in large amounts.

Q. Did you find it?

A. I merely took three samples, from the imported products, and in one,—mackerel—I found it. I could detect the nitrite reacting material, but much less than in bleached flour.

Q. Did you ever examine corn starch? A. No, sir.

Q. Well, as a matter of fact, about the only thing you ever did examine was flour, to see whether it contained nitrites?

A. No, I have examined those other substances, but they were drinking water.

Q. Well, we are not after the drinks, now.

A. I am telling you the things we commonly examine for nitrites, chemically.

Q. But you never examined any other food products than flour, did you? A. No.

Q. Did you ever examine the air that you breath, to see whether there is nitrites in that?

A. No, but I have learned it, incidentally.

Q. That there are?

A. Under certain circumstances, and not, under certain circumstances.

Q. Take it yesterday morning, after the sun came out, after the rain of Saturday,—would you have found nitrites in the air?

388 A. After the rain of Saturday? The rain would have washed them practically out, and carried them away.

Q. And if you had examined the air, Sunday morning, you wouldn't have found nitrite in the air?

A. Not in an increased amount.

Q. I didn't ask you in an increased amount. Wouldn't it have been there?

A. Oh, if you are talking about infinitesimal amounts yes.

Q. Well, you are inhaling that into the lungs all the time?

A. Yes.

Q. Every second of the twenty-four hours? A. Yes.

Q. Now, did you say you had or had not examined corn starch? A. Never did.

Q. So you are not prepared to say whether it has nitrite, or not?

A. No. But I am, from other sources. I have ideas on that.

Q. Now, you got a sack of this flour, on April 13?

A. April 13; yes, sir.

Q. I believe that is the date. And how soon after that did you make your examination?

A. I begun it that day. We made the nitrite test practically that day, and then I made a new standard, and I confirmed it. I made a nitrite test a few days later, that confirmed the first one.

Q. Now did you analyze this flour for any other purpose?

A. Yes, I—

Q. Did you examine it to ascertain the amount of starch that was in it?

A. No, I ascertained the color, in the gasoline solution.

Q. I am not asking you for that?

A. You asked me if I analyzed it for other purposes.

Q. No, what I am asking now is, did you make any examination to determine the amount of starch in it? A. No.

Q. Did you make any examination to determine the amount of gluten? A. No.

Q. Tell this jury, in a general way, what are the elements that— A. (Interrupting) Enter into the flour?

389 Q. Yes, that enter into the flour.

A. Well, the nitrogenous—the proteid element which enters into flour is the gluten, largely. It is the proteids of the flour. That amounts to, generally, from 10 to 12, even higher per cents. The ash of the flour varies in the quality of the flour, from, oh 30 odd hundredths up to 1 per cent in the clear, or even a little higher. The fat in the flour varies. It is a little lower in the higher grade flours,—in the patent flours, and it is—the shorter the patent, from the same wheat, the lower the fat, but when they use different grades of wheat, you can't tell anything about the grade of flour from the fat. Some millers put more fat in than others. The fat lies largely in the germ.

Q. Well, I am not asking you about the millers. I want to know all the elements that constitute the flour.

A. I am getting around to that. One miller has more of one element than another.

Q. Well, I'll ask you another question and maybe we'll get through. Did you examine this flour for the purpose of ascertaining the amount of gluten that was in it? A. No, sir.

Q. Did you examine this flour for the purpose of ascertaining the amount of starch in it? A. No, sir.

Q. Did you examine it for the purpose of ascertaining the amount of water in it? A. No, sir.

Q. Did you examine it for the purpose of ascertaining anything, except the amount of nitrites which you found in it?

A. And the ash?

Q. And the ash.

A. Let's see. And the color of the fat extracted from it, compared with an unbleached flour.

Q. All right. anything else?

A. Not that I recall, no, sir.

Q. That's all? Now, did you find any nitrogen peroxide in this flour? A. Nitrogen peroxide?

Q. Yes, sir. A. Yes, sir. Free or combined.

Q. Nitrogen peroxide is— A. (Interrupting) NO₂.

Q. (Continuing) A distinct substance in the chemical world as copper, or lead, or iron, is, in the mineral world isn't it?

390 A. What did you say?

Q. Read it? A. A distinct substance?

Q. Yes? A. Yes.

Q. That is a distinct substance?

A. I found it either free or combined.

Q. You found nitrogen peroxide in this?

A. I think it is there.

Q. Did you find it there?

A. I found a thing which I believe represents that it is in there. I got its action, in there.

Q. I am not asking you if you got its action.

A. Well, I didn't get it out. I didn't get the gas out, itself.

Q. But the nitrogen peroxide is a gas? A. Yes, sir.

Q. You didn't find any gas in it? A. No, sir.

Q. Did you find any nitrous acid?

A. I found nitrogen of the nitrous acid.

Q. You did?

A. Yes, I found nitrous acid, but I didn't get it out.

Q. Why didn't you get it out?

A. Because the way you test for nitrous acid—

Q. (Interrupting) No, I am not asking you that.

A. You asked why I didn't get it out. I am going to tell you.

Mr. Butler: Why didn't you get it out?

The Court: I think he should be allowed to go ahead.

Mr. Smith: Yes. I beg pardon for the interruption.

The Witness: The only way we can determine the amount of nitrous acid, is the amount of chemical work it will do. Now, I found, in there, that there was chemically active nitrous acid, free or combined, or in the form of this gas.

Q. Now, you never took any flour from the Lexington mills, that was unbleached and bleached, so you could make any comparative tests of the bleached and unbleached flours, did you? A. No, I think not.

Q. You have made a number of tests from flours, though?

A. Yes, I have.

391 Q. Where were they bleached?

A. They were bleached in various mills, by various processes, three or four flours, and bleached in my chemical laboratory.

Q. Now, have you gone to any mill, and there obtained bleached flour, and, at the same time, unbleached flour, from the same grade of wheat, and milled at the same time, in order to make a comparative test? A. Yes.

Q. Where did you get them?

A. Oh,—did I go to the mill?

Q. Yes.

A. No. I didn't grasp your question. I haven't.

Q. You have not? A. No.

Q. You have simply taken unbleached flour, and you have bleached it in your laboratory?

A. I have also done that, but I have had many samples of bleached and unbleached flour, of the same flour, sent me by the inspectors of the department of agriculture, which I have examined.

Q. Yes, but you have never personally gone to the mill and obtained it? A. No, sir.

Q. But you have bleached a great many samples in your laboratory?

A. I have bleached a great many samples, at different degrees.

Q. Now, in bleaching, in your laboratory, do you bleach with electricity, or do you bleach with chemicals?

A. Ordinarily I use bleaching chemicals, but I rigged up, also, a little mechanical device.

Q. But most of your experience in bleaching has been by means of bleaching chemicals?

A. Yes, sir; bleaching chemicals, by putting this gas in.

Q. Now, I believe you say that in this bleached flour, the mineral acidity is changed. What do you mean by that?

A. I mean that the mineral acidity is added in the bleaching.

Q. You think it adds a mineral acid, do you?

A. I know it adds a mineral acid, but whether I can ascertain the amounts, and show it, by analysis, I don't claim that.

Q. You don't claim you can demonstrate it, by analysis?

A. Not mineral acids, no, sir.

Q. How's that?

A. I don't, really. That is my opinion, based upon the
392 fact that we put into it nitric and nitrous acids.

Q. But you have never been able to demonstrate that unbleached flour, as compared with bleached of the same wheat, and milled at the same time,—you have never been able to demonstrate that there was greater acidity in one than the other?

A. Not in the milled flours, but in the laboratory flours, where I have exaggerated the conditions.

Q. Now, as to the odor and flavor,—and do you mean the same thing, when you speak of odor and flavor?

A. No. When I say "flavor" I mean taste, and when I say "odor", I mean smell.

Q. And do you say bleaching changes the odor of the flour?

A. It very frequently does.

Q. Well, do you mean to say that is a universal rule, or that it sometimes happens, and it sometimes don't?

A. It is in degree. Very frequently you can't notice any change.

Q. Very frequently you can't notice any change? A. No.

Q. If I would hand you some flour, here, could you tell the jury whether it had been bleached or unbleached by the flavor of it?

A. I could, if it was strongly commercially bleached, I could, provided it was sound, of course. I think I could.

Q. You think you could tell the jury that, by the odor, whether or not it was bleached?

A. I think I possibly could. I don't know that I could. I think I could. I say, if it was strongly bleached, commercially.

Q. Well, how strong has it got to be bleached?

A. It has got to be strong. As strong as this.

Q. Well, all right. If it is bleached as strong as this, do you think you can?

A. I don't know that I can, from the flour. I can from the bread. I just get these odors from the bread.

Counsel for defendant produces sample of flour, which he requests be marked as exhibit, which is accordingly done, being marked "Exhibit 208".

Q. Can you tell the jury about this (handing exhibit to witness)?

A. If I had that flour bleached and unbleached, then I could distinguish, in the odor, but without the comparison, I don't know that I could say.

393 Q. Will you try it?

A. If you will give me the other, I will be glad to.

Q. Smell that, if you will, and tell the jury whether you can say whether it is bleached or unbleached?

A. I don't care to make the experiment, unless you will give me the other.

Q. All right. You don't care to make the experiment on this?

A. I will, if you will give me the other of the pair.

Q. You are not willing to test this flour that is marked as exhibit 208, and tell the jury whether or not it is bleached or unbleached?

A. No, sir, not without a comparison with the other sample.

Q. Now, the color, of course, of the bleached flour, is noticeable, from the unbleached? It is whiter?

A. It is lighter.

Q. Yes, it is lighter?

A. And it has a different shade.

Q. Now, flour which ages naturally, becomes whiter with age, don't it? A. Yes, sir.

Q. Tell the jury what it is, the nature's laboratory, that bleaches it, that way? A. Oxygen.

Q. Oxygen? A. Sunlight.

Q. That is a constituent element of the air, isn't it?

A. Yes.

Q. Then flour which is exposed to the air becomes bleached by nature, does it?

A. To an extent; yes.

Q. Well, to an extent.

A. Not to this extent. Within reasonable limits of aging.

Q. But would it, if it were exposed longer?

A. I think it would.

Q. Sir?

A. I think it would. I think it would get chalky white if you would leave it long enough, exposed to the sunlight, and heat and oxygen, spread it out thin.

Q. Then, if unbleached flour were subjected to the atmosphere a sufficient length of time, it would become bleached as much as this other, you say?

A. It would, and it would be just as flavorless.

Q. Now, would there be nitrites imparted to them?

394 A. If it was exposed in a thin layer and bleached in that way, I should think there would be possibly. It is according to the air,—whether the air was pure or not. If you were to put it out there it would,—if you were to put it out there in the smoke.

Q. In other words, if a flour is stored in a ware-house in Kansas City, nature would bleach it? A. Yes.

Q. And nature would impart nitrites to it?

A. No, it wouldn't.

Q. Didn't you say the air contained nitrites?

A. No, I didn't say any kind. I say, if it was spread out, then, outside that window, then it would.

Q. All right. If flour, in Kansas City, was spread out on a surface where the air reached it—

A. (Interrupting) And the smoke reached it and circulated through it.

Q. Yes,—the conditions as they exist in the atmosphere.

A. In the city; yes, sir.

Q. You say they would be bleached? A. Yes, sir.

Q. And nitrites would be imparted to it?

A. Yes, sir.

Q. Now, isn't it true that, if it were spread out in the open, in the country, and exposed to the atmosphere, that that would whiten it? A. Yes, sir.

Q. And isn't it true that that would impart nitrites to it?

A. No, sir. In my opinion it would not.

Q. Did you ever try it?

A. No, sir. Never tried it.

Q. Now, if it were true that flour exposed on the top of a building, away from the city—away from this smoke that you get from your high smoke-stacks,—that, in the course of two or three or four days, it would show the reaction for nitrites, the same as bleached flour does, it would be because nitrites had been imparted to it by that process, wouldn't it?

A. Yes, I think so, or developed in it, of course.

Q. Now the nitrites which would be imparted to that flour would be the same nitrites which you found in this flour, wouldn't it?

A. I don't know as to that.

Q. You don't know? You said that this exposure to the air would develop the nitrites? I believe that was the expression you used?

A. No, I didn't say the exposure, to the air, would develop it. What did I say?

Q. What did you say developed the nitrites?

A. I don't know that I used the expression.

Mr. Scarritt: Read it.

The Witness: It might be, in some unusual conditions, something like that; that's all.

By Mr. Smith:

Q. You say rain would carry nitrites into it?

A. The rain washes the nitrites out of the air, and takes it into the soil. That is one of the purifying processes of nature.

Q. Then there are nitrites in the air?

A. Why, there are nitrites in the air, certainly.

Q. And as we breathe it, we breathe them into our system?

A. We certainly do.

Q. And as the air circulates through the bags of flour, it is carrying nitrites with it, isn't it?

A. It wouldn't circulate in there.

Q. But you say there are nitrites in the air?

A. There are.

Q. And wherever the air circulates, it carries nitrites with it?

A. Yes. But it don't circulate through a bag of flour.

Q. But wherever the air does circulate, wherever it does strike the flour, or any product, it carries nitrites with it, does it? A. Yes, but they don't always stick.

Q. Yes? All right. Now if you would confine your answer to my question we would get along faster.

A. Well, I want to give my opinion squarely.

Q. When the air circulates through your lungs, it carries nitrites with it? A. Yes.

Q. And when air circulates over the surface of flour, it carries nitrites with it? A. Yes, sir.

396 Q. And that nitrite which it carries is the same nitrite as that which was imparted to this flour by this bleaching process, wasn't it? A. I think so.

Q. Now, I think I asked you this question, but I am not sure,—did you ever get any flour from this mill, and make a test of the strength of the gluten?

A. No. I never did.

Q. Did you ever make any test of the strength of the gluten from other flours that you obtained from different mills?

A. I have, some of them.

Q. Now, how did you make that test?

A. Well, we make the test, practically,—Mr. Bailey did some of that work.

Q. Well, I don't care anything about what Mr. Bailey did. I want what you did. We will let Mr. Bailey testify what he did.

A. I doughed up those flours,—and pulled a dough, made them into bread, and they would break down. If they were

not bleached heavily, the bread didn't hold the gases, and I washed the gluten out, and put it in Foster's gluten tester, and compared it. I got comparatively less results.

Q. Well, now, were those flours that had been bleached at mills, or bleached in your laboratory?

A. Bleached in mills—commercial mills.

Q. I see. Now, how many different experiments have you performed in the baking of bread, to ascertain whether or not there were still nitrites in the bread, after baking?

A. Only four pairs. By another method, where I wasn't testing for that purpose, at all, but where I analyzed the bread, I have made quite a number. I have made perhaps,—let's see. I don't know the exact number, maybe 30.

Q. What would you say, now, as a chemist, if bread which was made from unbleached flour, flour which, at the time was free from any nitrites, was baked in an oven in which the fuel used was coal, or in a gas oven, where the products of combustion might reach the bread what would you say, as to whether there would or would not be nitrites in it?

A. I think there might be a trace of nitrites.

397 Q. Yes? There would be nitrites in it?

A. I said there might be a trace of it.

Q. Now, when you take bleached flour, and you make bread out of it as the ordinary housewife does,—she uses yeast; she sets it at night— A. Sponge.

Q. And she lets it raise during the night, and then, during the morning, she works it down, and then bakes it,—what would you say as to whether that bread, made from bleached flour, would or would not contain nitrites?

A. I think it would.—What was the question—made from bleached flour?

Q. Yes,—bleached flour.

A. Yes, I think so. Yes, it would.

Q. Did you ever test that? A. No.

Q. How do you know it?

A. I believe it would, because I use a similar method, and I found the conditions under which these nitrites pass out of bread.

Q. But you never baked any bread as the ordinary housewife bakes it, namely, setting her yeast sponge at night, with Fleischman's yeast, or something of that sort, and let the sponge raise over night? A. Yes.

Q. And then work it down, and then bake it. Now, you never tested any bread of that sort, to see whether it contained nitrites or not, did you? A. Never did.

Q. So, anything you might say, would simply be an abstract opinion?

A. No. It is an opinion based upon some other work.

Q. Yes? But you are of the opinion that bread made from unbleached flour, if baked in an oven where they used coal as fuel, or where they used gas as fuel, and where the products of combustion circulated around in it, that, in that bread, there would be nitrites in it? A. A trace. A small amount.

Q. Yes,—a small amount? A. Yes, sir.

Q. And that would be the same character of nitrites as that which you found in this flour, wouldn't it?

A. So far as the nitrites are concerned; yes.

Q. Yes? Now, what do you say, as a chemist, as to whether or not flour, unbleached, brought into the kitchen absolutely free from nitrites, and put into the pantry off the kitchen, in a flour bin, in a home where they use gas for lights, or where they use gas in the kitchen range, or where they use coal in the kitchen range,—what would you say as to whether that flour in the flour bin will show particles of nitrite in it? A. I think it will not.

Q. Are you quite sure of that? A. Yes, sir.

Q. Did you ever make any test of it?

A. Never did, but I think it will not.

Q. So, your opinion is not based on any practical demonstration? A. If it was in the flour bin it would not.

Q. Well, let us assume it was not in a hermetically sealed bin? A. I supposed it was in an air-tight bin.

Q. Let us assume it was in the bin where the air circulates through it?

A. If the air was bad, but I don't know how bad.

Q. It is true that the burning of gas lights in the kitchen will impart nitrites to the air, isn't it? A. Yes.

Q. And it is true, too, burning coal in the kitchen range?

A. Yes.

Q. And the air, if allowed to circulate through there, from the kitchen, due to the burning of gas, will leave nitrites in it?

A. Yes.

Q. And they are the same nitrites you found in this flour?

A. So far as the nitrites are concerned.

Q. And one is just as bad as the other, isn't it?

A. Yes, sir.

Q. And that nitrite which is in the kitchen air, due to the burning of gas, will be imparted to the flour that is exposed to the air, wouldn't it? A. Yes, to some extent.

Q. And that is the same nitrite that you found in this, isn't it? A. Yes.

Q. And one is just as bad as the other, isn't it?

A. Yes, sir.

Q. No worse? A. No, because it is just as bad.

399 Q. And so, if you had unbleached flour, free from nitrites when it is brought into the house, and the kitchen is lighted up by gas lights, and they bring that flour out on the table, and they use it there in making pastries, or making bread, and expose it to the atmosphere in which the gas lights have been burning, there would be nitrites imparted to that by that, and by cooking in the kitchen?

A. Maybe by cooking it. I don't think there would be by taking it out and working it, and mixing it up, at all.

Q. Well, all right. But, in preparing it, there, and exposing it, and getting it ready for consumption in the family, nitrites would be imparted, wouldn't it?

A. A trace might.

Q. And that is the same nitrites you found here?

A. Yes, sir.

Q. So, we seem to be in for it, most any way, don't we?

A. Yes.

Q. Now, you spoke of patent flours. You say it contains the better portion of the content of the wheat?

A. Yes. Did I say the better portion? Yes, I did.

Q. Well, now, don't you believe that flour which contains all of the berry of the wheat is the better flour?

A. Better, how?

Q. From the standpoint of nutrition?

A. It is more wholesome, and I prefer it.

Q. All right. We are simply getting your opinion, or your judgment. A. Yes.

Q. In your judgment, the flour which contains 100 per cent of the berry of the wheat is the most nutritious flour?

A. No, not the most nutritious. I said the most wholesome.

Q. But the flour which contains 100 per cent of the berry of the wheat, is the most wholesome?

A. Yes, but not the more valuable.

Q. But you are talking about what it will sell for on the market? A. Yes.

Q. But we are not quarreling, here, over the value of it on the market, but as a wholesome food product, and, in your opinion, the more nearly it contains the whole content of the wheat, the better flour it is?

400 A. Yes, sir, I use the graham bread in my family.

Q. Then, in your opinion, the miller who puts in 95 per cent of the whole wheat makes a more wholesome flour than the one who puts in 30 per cent? A. No.

Q. Didn't you say the more the better?

A. No, not in this case. I think the bran perhaps does make it better, but there is a difference between the bran in the

outer part, and the part near the bran. There is a distinction, there.

Q. No, but you made it clear that, in your judgment, flour which contained the whole product of the wheat was more wholesome? A. I believe it is.

Q. You never saw any schedule prepared by your department, and issued under authority of your department, fixing a standard for patent flour? A. No.

Q. Neither as to per cent of patent, or per cent of ash, or per cent of gluten, or per cent of anything else, did you?

A. No, sir. I should oppose such a standard.

Q. As a matter of fact, no two millers have the same, have they? A. No, sir. Not wholly.

Q. In making these experiments in your laboratory, how long did you subject your flour to this nitrogen peroxide which you had prepared?

A. Oh, long enough to shake it up so that all of it disappeared in the bottle, like that (indicating).

Q. Well, that don't give me much information. Was it five minutes, or two minutes, or an hour?

A. It wasn't a minute. Just till the gas was absorbed. Shook it thoroughly, so you could see no more gas, or smell no more gas, in the bottle. Then you can dump it out.

Q. You did that until you could smell no more gas, when you took it out of the bottle? A. Yes.

Q. Now, you had the flour in a closed receptacle?

A. Yes, sir; in a two-gallon bottle, generally.

Q. About how much flour did you put in there?

A. I generally put—better give it in pounds?

Q. Yes. We know what it means, then.

401 A. I took about a pound and one-tenth. I took 500 grams.

Q. How much nitrogen peroxide did you subject that to?

A. Varying amounts. I will give that now, in liquid ounces, then you can understand it. From about 1-6th of an ounce, 1-3 of an ounce, 2-3rd of an ounce, an ounce, and increased amounts over that to a pound and 1-10th of the flour. I use cubic centimeters, of course,—5, 10, 30, 40, 50,—and that way, —cubic centimeters.

Q. Yes? A. And 30 cubic centimeters is an ounce.

Q. And you put it in this glass receptacle and shake it up?

A. I shake it up until the flour absorbs the gas.

Q. Then, when you take it out of there, what is the condition? A. The gas was absorbed, and it was flour.

Q. The gas was all absorbed?

A. I mean it was all taken up with the flour.

Q. You don't mean it escapes, then?

A. It would escape, gradually, possibly, some of it, but it was all absorbed, and the flour was bleached, and the two conditions, are, then—Well, those are the conditions,—that when you shake this flour up with the gas, the gas is gone, and the flour is bleached.

Q. Now, do you know the strength of the solution to which you subjected the flour? A. The dilution?

Q. Yes.

A. In the bottle? Oh, I can figure it, very roughly.

Q. Well, how much nitrogen peroxide to a cubic foot of air?

A. Well, the dilution is varying amounts—from 1 to 1000, in the bottle, and starting from that, and getting more concentrated as the series runs up, and if I took the same amount of flour, and the same two-gallon bottle, there would be 3,500 and something cubic centimeters. In a gallon there would be 7,000, and in the two-gallon bottle, not counting the dump where the stopper is; and I would put into that 7000 volumes, and 5 volumes, and 10 volumes, and 30 volumes, and that is past the range that we are discussing here.

The Court: We will take a few minutes' recess.

402 (Recess taken for five minutes.)

Dr. Andrew S. Mitchell, resuming the stand, testified further as follows:

Mr. Butler: Is that all, Mr. Smith?

Mr. Smith: Yes, sir.

Redirect Examination

By Mr. Butler:

Q. Is there any difference in the effect of treatment of flour by nitrogen peroxide gas, mixed with air, depending upon the way that the gas is made—that is, whether it is made by chemicals, in a laboratory, or whether it is generated by the Alsop flaming arc process?

Mr. Scarritt: We object to that, because that is a question for the jury to decide, after both have been described.

The Court: Objection overruled.

A. There is not.

By Mr. Butler:

Q. On the lapse of time after bleaching, does the amount of recoverable nitrite reacting material in the flour increase, or diminish? A. Diminishes.

Q. Can you give us any information affecting the degree or rapidity with which it lessens, as time goes on?

A. Yes. This is just vaguely. It varies with the different flours, and the different conditions of storage. Warm weather increases the speed with which it diminishes, and apparently flours,—low grade flours,—it disappears more rapidly than in the others, but it disappears so that, after 20 days, you will get about the same amount recoverable, where 30 c. c.'s have

403 been used, as you would where 20 had been used, if you tested it three days after. If you tested it three days after bleaching. Flour bleached with 20 c. c. gas per kilo.

Q. Then the quantity of gas, as I follow you, would be about one-third less, in a month after bleaching?

A. Yes. Depending very considerably upon conditions.

Q. Yes, I understand,—the heat and temperature?

A. The quality of the flour, and its exposure.

Q. And the manner in which it is packed, and all those things. A. Yes, sir.

Q. Now, as respects nitrite reacting material, or nitrites, as designated in your cross-examination by Mr. Smith, in the air, the quantity, compared with the quantity found in this flour. What do you say?

A. Why, with the lapse of time—if I get your question—with the lapse of time—Read the question.

Q. No, strike out the question. It is apparent you don't get it. You have just told me that the amount of nitrite reacting material in bleached flour lessens, upon exposure?

A. Yes, sir.

Q. In your cross-examination, you told Mr. Smith that there were nitrites, or nitrite reacting material, in the air?

A. Yes, sir.

Q. Now, as to the quantity in the air, compared with the quantity in the flour. That is what I am trying to get at. Which is greater, and how much?

A. Why, this is very infinitesimal, in the air.

Q. Will bleached flour take on more nitrites from the air, or impart nitrites to the air?

A. It will impart it to the air.

Q. What in your opinion, is the truth with respect to this bleached flour, here in the court room, as to whether or not it is taking on nitrite from the air, or liberating this gas into the air?

A. It is liberating the gas into the air, to a slight extent.

Q. And as respects the quantities of nitrite reacting material which you say that you understand to be in other articles

of food, like smoked ham, as compared with the flour seized
in this case. Are you able to give us any expression
404 about that?

A. My examination isn't sufficient to give you any idea of quantity, and I can only say that the nitrites which are present are undesirable.

Q. Now, can you tell us, under the assumption of facts proven in this case, namely, that this flour was made and bleached in Lexington, Nebraska, on the night of the 31st of March, last, and your analysis, after shipment to Castle and from Castle to St. Paul, was about two weeks later,—the 13th of April— A. When was the flour made,—pardon me?

Q. The 31st of March. Your analysis was the 13th of April, as I got your testimony.

Mr. Scarritt: He received it.

The Witness: I received it.

By Mr. Butler:

Q. Did you analyze it when you received it?

A. Yes; for nitrites. I made that test, at once.

Q. For nitrites? A. Yes, sir.

Q. Quantitative? A. Yes, sir.

Q. Now, can you express to the Court and Jury the volume of nitrogen peroxide gas added to that sack of flour which you received? A. I can.

Q. I mean, the undiluted nitrogen peroxide gas?

A. I estimated that there was 20 cubic centimeters of the gas used, providing this flour was freshly bleached. On the other estimate, it would be about—if it was diminished one-third, there would be about 30 cubic centimeters of gas added, per kilo of flour, or, figured on the weight of the sack of flour, it would be, oh, a pint and a fifth, on the cubic centimeter test.

Q. That is, there would be a pint and one-fifth, of undiluted nitrogen peroxide gas, added to the sackful of flour shipped to you? Is that what we are to understand?

A. In volume. One pint and one-third. There would be 21 and a fraction cubic ounces.

Q. Now, so as to give us something that we have seen;
405 How much in volume of that gas would it be, if diluted to the degree of dilution as was the gas made and brought here at the time that Doctor Shepard testified, in the bottle marked Exhibit 6. That was diluted 1 to 4, I think.

A. Yes. 1 in 5.

Q. And that would be how much gas, of that dilution?

A. It would be 5 times that volume.

Q. It would be four times the volume? It is 4 to 1.

A. If it has the volume of 4 added to 1, that is 1 in 5.

Q. Very good.

A. It would be 5 times the volume, wouldn't it?

Q. Yes, I believe so.

A. That would be approximately 7 pints—nearly a gallon, in volume.

Q. Nearly a gallon in volume, of the dilution shown?

A. Yes, sir.

Q. By Doctor Shepard's exhibit 6? A. Yes, sir.

Q. Into the sack of flour which you analyzed?

A. Yes, sir.

Q. In your cross-examination you spoke of nitrites being imparted to the flour, in the contaminated air of cities. Now, as to the degree of that. If the flour be spread out thin, you said, something. Now, if it be stored in sacks and barrels, etc., which way would it receive the most?

A. It would receive the most, if spread out thin, the same as if you would spread butter out thin, in the sun.

Q. Now, this Griess-Illsvoey test is a delicate test, we have been told. A. Yes, sir.

Q. How small a quantity of nitrite reacting material is it understood by chemists, generally, that this Griess-Illsvoey test will disclose, by the color reaction, as described by one of the other witnesses?

A. In pure water, with nothing interfering, it will disclose—it is generally fixed, one one-thousandth of a million thousand.

Q. That would be about one to one billion, in ordinary conditions? A. Yes, sir; in pure air.

Mr. Helm: What is that? One per billion?

Mr. Butler: Yes, or a thousand million.

406 Mr. Smith: That's beyond me.

Mr. Butler: Well, I will write it.

Mr. Smith: Oh, I can write it, but I can't comprehend it.

The Witness: I should like to add that it will disclose that delicately, but you can't estimate anywhere near that delicacy.

By Mr. Butler:

Q. That is the understanding of chemists, that the color would be affected? Now, to get nearer to things, in size: Assuming that your opinion is right, that there would be 7 to 8 pints of gas, of the dilution shown to us by Prof. Shepard, added to the sack of flour which you analyzed, and assume, further, that that combined in the ordinary methods, in the flour, with bases of the chemical value of sodium, how much such

nitrites or nitrite would be formed in a sack of flour, expressing it in some terms of weight that is familiar to laymen?

A. May I compute, roughly?

Q. Yes.

A. There would be about four grains in the sack of flour, based on the amount of my recovery.

Mr. Scarritt: Four grains, did you say?

The Witness: Four grains, sodium nitrite, in the sack of flour, based upon the amount of my recovery. We estimate those substances in grains—in pounds.

By Mr. Butler:

Q. Now, your statement was, as I recall it, that about one-third to one-half of that would remain in bread made by the Kaellner process?

A. No. My statement, estimated on the dry basis, my estimate was that the bread, itself, would contain possibly one-fourth of them, or 20 per cent of them.

Q. About one-fourth?

A. Yes, or one-fifth of it. I will put it conservatively.

Q. How many loaves of bread, about, will 48 pounds of flour make? A. About 70 or 75. 70.

407 Mr. Butler: I believe that is all.

Recross Examination

By Mr. Smith:

Q. Can you detect the presence of these nitrites in the flour, in as minute quantities as in the water?

A. I didn't answer the last question of Mr. Butler's. I was just computing. I said there was 70 loaves of bread, made from that sack.

Mr. Helm: That is the question Mr. Butler asked you.

The Witness: I understood another question followed.

Mr. Butler: Well, my attention was drawn to something else. Just read my last question, and the answer.

(Question and answer read by the reporter.)

By Mr. Smith:

Q. Can you detect the presence of nitrite in the flour, in as minute quantities, as you said you could in water?

A. No, sir.

Q. What would be your judgment, as to how minute quantities you could discover in flour. I believe in water you said one part to a billion? A. Yes.

Q. In flour, you would have how much—one part to, how much?

A. Oh, if there are small amounts present in the flour, you can take larger amounts of the flour and detect more delicate amounts. You could detect in the flour, if you had to—

Q. (Interrupting) One part in how much?

A. One part in—well, in one [hundredth] million.

Q. One part in one hundred million? A. Yes.

Q. In other words, if there was one pound of this nitrite in 100 millions pounds of flour, you could detect it?

A. Yes, sir.

Q. Now, let's see: Assuming that 20 thousand would make a carload—If there was one pound of it in 50 thousand carloads of flour, you could detect it, could you—assuming 408 that there are 20 thousand pounds in a carload of flour.

A. 20,000 pounds would be 10 tons?

Mr. Butler: Mr. Smith, there is more than 10 tons in a car of flour.

Mr. Smith: No, I think 20 thousand pounds is a carload.

Mr. Butler: What is the tariff minimum on that?

Mr. Smith: I think the tariffs run from 20 to 24 thousand.

Mr. Butler: They make this on the wheat rate?

Mr. Smith: I know that the average carload of flour is about 20 thousand pounds.

Mr. Butler: That's not the way they make tariffs.

Mr. Smith: I never made a tariff.

Q. Assuming that 20 thousand is a carload, then, in that 100 million pounds, there would be 50 thousand carloads of flour, wouldn't there? Divide 100 million by 20,000.

A. Yes.

Q. Then, if you had one pound of this, in 50,000 carloads of flour, of 20,000 each, you could detect it, could you?

A. Yes. Could get a trace of it. You wouldn't call it bleached flour, though.

Mr. Smith: That's all.

Mr. Butler:

Q. That would be more like the atmosphere, wouldn't it, than bleached flour? A. Very much.

(Witness excused.)

409 Walter Kempster, called as a witness on behalf of the Government, being first duly sworn, testified, as follows:

Direct Examination

By Mr. Butler:

Q. What is your name?

A. Walter Kempster.

Q. Any middle name, Doctor? A. None.

Q. K-e-m-p-s-t-e-r? A. That's right.

Q. Doctor, how old are you? A. 69.

Q. Where do you reside? A. Milwaukee, Wis.

Q. And are you a regular practising physician, there?

A. Yes.

Q. And you have been engaged in that profession for how long? A. Since 1864.

Q. Will you give us your education and experience, and qualifications, and specialties—special work, etc., if you have any, and, Doctor, I would like to have you disregard any considerations of modesty, and tell us all about your work, so the jury and the Court may understand who you are, and what your means of knowledge concerning matters we are to examine you upon, are?

A. I am graduate of Long Island College, Brooklyn, N. Y., 1864. I first did professional work in the army, during the civil war. I afterwards became interested in the subject of nervous disorders, and have made that a specialty, from that time till the present. During that period, I have served as an assistant physician in a New York hospital for the insane, for 8 years. Afterwards as superintendent of the Northern Hospital, in Wisconsin, for 13 years. I have investigated conditions—economic conditions concerning the emigrants coming from the foreign countries into the United States, for the United States Government. I have investigated the subject of transmission of cholera and other dangerous, infectious diseases, from the several countries of the old world, into the United States.

410 Q. And have you given any attention, in your work, to the matter of foods and diet, and the effect of same upon health and well being of the people? A. I have.

Q. Have you heard the testimony which has been so far given in this case? A. Yes.

Q. Are you familiar with the substance known as nitrogen peroxide gas? A. Yes.

Q. Describe its character, to the jury, especially as regards effect of ingestion, with food, or otherwise, into human beings?

A. The ingestion of this material by human beings has several effects. First, It impairs digestion; acts to check the digestion of not only bread, but other foods. By digestion, I mean that process which takes place not only in the stomach, but throughout the entire intestinal tract. There is not only

a form of disorder known as stomach indigestion, but also a form of disorder known as intestinal indigestion, which, in its way, is as serious as stomach indigestion. It induces constipation, on account of the indigestion. It passes from constipation into a condition that is known to the profession as obstipation, meaning very obstinate constipation. That still further interferes with the processes of digestion and the processes of the absorption of food; food, as you know, being absorbed through the walls of the stomach and the intestines into the blood. This peroxide of nitrogen, finding its way into the blood, comes in contact with minute bodies—cell-like bodies, which we call corpuscles, and the action of the remedy is to prevent these corpuscles from doing their duty. To put it in English, these corpuscles become rusty.

Q. Become what? A. Rusty—like rust.

Q. Yes.

A. Like rust on bright metal. I used that term merely to try and explain the matter. So that the corpuscle which is thus affected, can no longer carry oxygen, which it is designed to carry from the lung to the tissues of the body. Neither can it take from the tissue of the body the material which it must take out, if the person is to remain in health. So
411 that these blood cells, or blood corpuscles, become affected, and, in turn produce a form of disease which is known as anemia, or a bloodless condition. That disease, intensified is known as chlorosis, which is a very sever form of anemia. The destruction of the blood corpuscles will produce those forms or disease.

Q. Now, in my question, I used the expression "nitrogen peroxide gas." There has been used, here, "nitrous nitrogen", and "nitrite reacting material", by those who have examined the flour in question descriptive of the substance added by bleaching. Now, that there may be no confusion in terms,—in your answer, What did you intend to attribute the effects that you have described, to?

A. The peroxide of nitrogen.

Q. Peroxide of nitrogen? That is, the gas itself?

A. Yes, sir.

Q. Now, assuming the truth to be, that this bleaching process employed nitrogen peroxide gas, mixed with air, and brought the mixture into intimate contact with the flour, in a state of agitation, and that, as a result of such treatment, there was added to the flour nitrite reacting material, which has been described in the evidence here, and also that it would remain in food made from the flour, either in whole or in part. Can you tell us whether or not, in your opinion, an injurious or deleterious or poisonous substance is imparted by such process to the food so made?

Mr. Scarritt: We object to that, because he has not qualified himself, if your Honor please, because it is asking for the conclusion of a witness, that is solely in the province of the jury to determine.

The Court: Objection overruled.

Mr. Scarritt: Exception.

The Witness: Assuming that the substance is added, as you have stated, it is a poisonous substance, and deleterious to health.

By Mr. Butler:

Q. Now, will you describe, assuming the quantity so
412 added to be minute—small—what is your opinion as to the effect upon health?

A. It does not change my opinion, because that is not the only substance taken in bread which produces disease, taken in very minute quantities.

Q. In your opinion, what effect upon health would the use, in bread, of such nitrite reacting material, added to flour by this process, have, or tend to have?

A. It would have the effect to destroy a large number of the red blood corpuscles, and put them out of their functional purpose, not only so, but, being out of use, they are in the way, so to speak, and interfere with the functional service of the red corpuscles, that may remain in good order.

Q. And the function of the red corpuscles is what?

A. The function of the red corpuscles is to carry oxygen from the lungs to the tissues of the body, and to carry from the tissues of the body to the lungs the material, which must be removed from the body, if the person is to live.

Q. Then, as I take it, it is a conveyor of oxygen from the lung to the tissue, and of rejected matter, from the tissue to the lung, where it is exhaled in the atmosphere?

A. That is correct.

Q. And is the performance of such function necessary to life?

A. It is. Life depends upon the performance of that function, and any interference with that function interferes with health.

Q. And if the obstruction be complete, it would result in death by smothering? A. Death follows.

Q. Death by smothering?

A. Yes, to use an English expression. They smother to death—strangle.

Q. Aside from the effect of such nitrites upon the function of the blood as a carrier of oxygen to tissue, has it any

other effect, except upon digestion, which you have described, but upon blood, or action, or flow of the blood?

A. Yes.

Q. What is it?

A. It weakens the action of the heart, and the flow of the blood is not as it was intended by nature that it should be.

413 Q. What effect has that, upon well-being?

A. The tissues do not receive the quantity of oxygen that is necessary to maintain them in a normal condition.

Q. Now, with respect to this nitrite reacting material. I would like to get you to compare the effect, if you can, upon people of different power,—the young, and the old, and the weak and the strong, and the well and the sick, etc.

A. A well man, meaning a man in normal condition, would resist the action of the agent much longer than one who was delicate, or who was suffering from some form of disorder. A stronger person would resist it a greater length of time, but, in the end, he, too, would succumb.

Q. Now, the effect, or rule, or law, in your profession,—if there is one,—as to the effect of continued eating of such a substance, regularly, as bread, we will say, is consumed in the human family. What is the effect, in that regard?

A. It is more harmful, than to take a larger dose at one time, or for a very short time, because the conditions produced by the ingestion of the material, acting continuously on the blood, or on these cells in the blood, reduce them in number, and in their capacity for doing work, and when they are so reduced, they cannot perform the work required of them; and the man, himself, is no longer fitted to perform the duties which he would do if he had not taken the material. That is,—if I may be allowed to use a comparison—that is illustrated very perfectly among those people who use, for a considerable length of time, rye bread. There is a form of disease which manifests itself in those who use rye bread, in which the rye has been "smooted", as it has been called. They, after a time, have a form of disease known as chronic ergotism, which almost always results in death. It is quite common in certain parts of Russia, and it is also found among people who live very largely upon meal made from a low grade of corn, as in certain parts of Italy, where the continued ingestion of the smooted corn induces a form of disease known as pellagra,
414 which is very fatal.

Q. Now, in such instances, is it because of the continued use of the smooted rye bread, and the corn?

A. It is because of the continued use of the rye bread, in the one place, and the smooted corn in the other place.

Q. Are nitrites, or some of them, used as medicines, administered to sick people by physicians? A. Yes, sir.

Q. What form of nitrite, or nitrites?

A. A medicine that is referred to now as nitrite of amyl.

Q. What is a medicinal dose of nitrite?

A. It is used, ordinarily by inhaling, and the usual dose is 5 drops, as it is administered now. It was, at one time, administered much more freely, until the deleterious effect produced by its administration was discovered, and then it was very largely discontinued. They use it now infrequently compared with what they used to.

Q. Now, what therapeutic effect results from such administration, if given?

A. It was prepared, originally, to check or interrupt spasmodic forms of disease, as epilepsy.

Mr. Butler: I rather think that will be all, your Honor.

The Court: You need not formally close. Court is in recess until 2 o'clock.

(Recess taken as ordered.)

Afternoon session.

Kansas City, Missouri, Monday, June 6, 1910.

Dr. Walter Kempster, in continuation of his direct examination, testified as follows:

By Mr. Butler:

Q. In your examination this morning, Dr. Kempster, made an explanation of the use of amyl for medicinal purposes.
415 es. I want to ask you whether or not it hasn't an effect comparable with nitrites such as are produced in flour by bleaching, by means of this nitrogen peroxide gas mixed with air? A. Yes.

Q. Now, as to the extent of your observation of the use of that substance and the character of the effects produced by its regular use, I would like to have you speak.

A. It was used regularly in the hospital with which I was connected for the treatment of epilepsy.

Q. At the insane hospital you mentioned?

A. That was at the hospital in New York, however, the wards set apart for the treatment of epilepsy were not exclusively used for the insane; there were many epileptics there who were not insane, were there for treatment, and so that there were both sane and insane epileptics under observation. The remedy was introduced because it was believed to be almost a specific for the treatment of spasmodic difficulties, and it was used at that time quite freely to overcome those

difficulties, and the doses used were larger, much larger than are used now. After using the nitrite of amyl on about two hundred cases for a period of time it was noticed that the general health of the epileptics was becoming impaired; it was so noticeable that the continued use of the nitrite of amyl was stopped, and then investigations began in the hospital, and we became satisfied that it was the nitrite that was producing difficulty, and after that the agent was not used excepting in very rare instances, and has not been used in my practise from that time until the present excepting only as I have found it used when I have been consulted, and have invariably recommended its discontinuance on account of the impaired health that follows the continued use.

Q. Now, is nitrite of sodium used as a medicine?

A. It is.

Q. And a medicinal dose of nitrite of sodium?

A. It varies. The dose that I have used personally has been one grain, that is, the dose that I did use; I don't use it now.

Q. And for what particular purpose or therapeutic action is that used? A. It is used to reduce blood pressure.

By Mr. Lyon:

Q. To produce or reduce? A. Reduce.

416 By Mr. Butler:

Q. And has it that effect? A. It has.

Q. Now, as to the character of nitrogen peroxide gas, as to whether it is poisonous or not. A. It is a poison.

Q. And capable of producing death? A. Yes, sir.

Q. Have you known instances of that sort? A. Yes, sir.

Q. Now, something was said this morning in the testimony of one of the witnesses as to the presence in very minute quantities of nitrites in the air, perhaps some articles of nature, articles of food, hams and vegetables were mentioned among them, celery, I think. Now, assuming that to be true, if, as a matter of fact, nitrites are in the air, we'll say in some minute quantities, how can it be that the adding of nitrites to flour in such quantities as here suggested will be injurious to health.

Judge Scarritt: We object to that as an argument and not a question of expert testimony.

The Court: He may answer.

To which ruling claimant then and there duly excepted.

A. The nitrites found in the air is a very minute quantity unless in a location where nitrites are produced, as in chemical laboratories. The proportion found in the air we breathe is so minute as to exert but slight influence, but it does exert an in-

fluence, it exerts a greater influence in very foggy weather than in clear weather, and in proportion to the density of the fog, we have a greater amount of the nitrite with a denser fog. They have a fog in London known as the "pea soup fog", which is very heavily charged with nitrites and produces the sense of suffocation and coughing and difficulty of breathing.

Q. Have you had to do with the examination of water for human consumption, the intestines of humans? A. Yes, sir.

Q. For materials? A. Yes, sir.

Q. Now, as to the existence of nitrites in water from wells or supplies of water used for human consumption, you may state whether or not that is considered an objection to the use of the water?

417 A. It is not only considered so, but it is positively injurious to use it, so much so that the boards of health of the cities using water from certain sources, if they find what is known as a heavy trace of nitrites in the water, the water is condemned and is not considered potable until it has been boiled.

Q. That is not fit to drink until they boil it?

A. It is not fit to drink.

Q. Now, as to the meaning of the word "trace" which you just used, does that calculate to indicate a measurable quantity, or a quantity so minute as not to be measurable?

A. It is a very minute quantity, but still measurable under modern methods of measurement, but the rule of the departments is simply that where there is a heavy trace, meaning a minute quantity, the water is condemned and is recommended by the health authorities to be boiled in order to avoid sickness.

Q. Now, what is the effect of nitrites found in—by the way, what is the source of nitrites in the vegetable or organic matter such has food and meats, and the like?

A. It is found as being present when decomposition commences, and decomposition commences very rapidly after death.

Q. And as to the quantity containing decomposition, the quantity of the nitrite reacting material, or nitrogen peroxide gas, how does it compare with the degree of decomposition?

A. As decomposition increases there is a greater quantity of the nitrogen peroxide evolved.

Q. Now, as to its presence in articles of food, like meats, hams or other organic foods, what do you say as to the effect of the use of foods containing nitrites, like ham cured by smoking, and so forth, its digestibility and its effect upon the well being and the propriety of taking it when digestion is weak and feeble, and sick and so forth?

A. As I stated, the production of the nitrite depends upon decomposition. If decomposition is checked, as it is in the

smoking of ham by the creosote, that stops the formation
 418 of the nitrites, and whatever of nitrite may be in the
 ham before the smoking checks the production, is dele-
 terious, but the quantity taken in ham would be very minute
 as compared with that taken by the substance just mentioned,
 the nitrite of amyl, or when the result would not be marked,
 and then we do not eat the ham three times a day the year
 around.

Q. Now, as to injury to health resulting from the use of
 foods containing nitrites or otherwise adulterated or objec-
 tionable, state whether or not injuriousness may result from
 the continued use when the effect of the taking of a given
 amount is not measurable or observable or made manifest by
 symptoms or apparent well-being to the person taking it?

A. Those symptoms may not manifest themselves so as to
 be determined by an ordinary examination until after the ma-
 terial has been taken into the system for a long time. That
 may be likened, perhaps, for the purpose of illustration, to the
 taking of water which flows through a lead pipe; that may
 be taken for a long time before we have symptoms of lead
 poisoning, but it will come sooner or later.

Q. And now specifically as to flour or bread made from
 bleached flour, have you yourself heretofore considered in your
 practice and treatments respecting diet, considered the effect
 of such bleaching?

A. I have and do so at this time.

Q. Now, have you had any experience or observation in
 hospitals or elsewhere in that regard? A. I have.

Q. You may state, what it is.

A. About twenty years ago my attention was directed to
 the condition of patients in the hospital with reference to the
 diet which they took. It was at that time, or about that time,
 that there was considerable discussion relative to the merit of
 patent flour, so-called, and I then began investigations in a
 practical way upon the subject, and my investigations were
 followed from time to time until I learned that the bleached
 flour was being used or introduced into the market, the con-
 dition of digestion was what attracted my attention more
 419 particularly, and I instituted some experiments of a
 practical nature, and the result was that I came to the
 conclusion that even the so-called patent flour is not as whole-
 some as the flour made from the entire kernel of the wheat.
 Reaching that conclusion I made arrangements with a mill to
 provide me with that flour alone, I mean flour made from the
 grinding of the whole wheat, and with the introduction of that
 flour into the hospital the improvement in digestion and in the
 general condition of health of the patients was very marked,
 so that as long as I remained in connection with hospitals and

even now, in my private practice, I require my patients to make use of that kind of flour, and not use the very white or patent flour so-called.

Q. Now, as to the observation of effect of flour containing the nitrogen peroxide gas as a result of the bleaching, has your observation extended to that?

A. We have found on investigation that some of the flour which we have bought for use in the hospital had been bleached, and my attention was therefore called to the quality of the flour, and my observations, comparing that with the quality—with the flour from the whole kernel, led me to conclude very decidedly that the bleached flour was improper to use, and even the white flour, the patent flour.

Q. Unbleached?

A. Resorted to the whole berry, it does not look as pretty, but it is a great deal more healthy.

Q. Why is it that whole flour is—the whole content of the wheat, does that include bran and all? A. Yes, sir.

Q. Is better than the unbleached, wholesome white patent flour of commerce?

A. The reason is that the portion of the berry excluded in the making of a very fine white patent flour is a little brownish in tinge, lying next to the bran, that particular material which they take great pains to exclude in making a high grade white flour, contains a substance known as cerealine, which is a digestive element, and when that is removed the starch

of the berry is not digested so well as when it is permitted to remain; that cerealine changes the starch into a material which is much more easily digested, which will easily absorb, and when that is excluded from the kernel, the wheat, you remove one of the elements that should be permitted to a person in order to carry on normal digestion.

Afternoon Session—Monday, June 6, 1910.

Cross-Examination

By Mr. Smith:

Q. Doctor, did you ever examine any of the bleached flour in controversy in this case? A. No, sir.

Q. Did you ever examine any flour that was bleached by the Alsop process?

A. No, sir, excepting as remarked a little while ago, in comparing it with flour that I had in the hospital for the purpose of comparison, in relation to its digestibility.

Q. Well, when was that?

A. That was about twenty years ago.

Q. Well, did you have any bleached flour by the Alsop process twenty years ago?

A. No, no, no; no, I beg your pardon, you did not quite understand me, perhaps I did not make myself clear. My at-

tention was first called to the necessity of having a flour made from the whole grain about twenty years ago.

Q. Yes, that is all right.

A. And I said, as I investigated later, I found that there was a process of bleaching; I didn't know then whether it was the Alsop process or what process it was.

Q. Twenty years ago when you went to the whole wheat diet instead of the patent flour was that flour then bleached?

A. No.

Q. I mean was the flour which you discarded, namely, the patent flour, was that bleached?

A. No, not to my knowledge.

Q. No. Well, did you examine it to see whether it contained nitrites or not twenty years ago? A. No, sir.

Q. Sir? A. No.

Q. Well, then, the fact is you discarded the patent flour twenty years ago and went to the whole wheat flour, not because it was bleached and thereby contained nitrogen or nitrites or nitrite reacting material, but because you preferred the whole wheat flour? A. That is correct.

421 Q. That is correct. That is what I thought. Now, this substance which you have denominated adulterous or deleterious or poisonous, is what has been referred to here generally as nitrites or nitrite reacting material?

A. Yes, sir.

Q. You don't object to that simply because it is introduced into the system by way of the bread, do you?

A. I object to its being introduced into the system in any form, I don't care what it is.

Q. Yes, sir, that is what I thought, that is what I thought you were not against it simply because it happens to be contained in flour or bread? A. No.

Q. You would be against it no matter what form it is introduced into the system? A. That is right.

Q. And do you understand that where bread is used as a conveyer, that it is not worse than though something else was used as a conveyer, if it goes into the stomach?

A. I don't think I understand your question.

Q. I say you object to nitrites, when bread is the conveyer, it takes it into the stomach, no more than you would than if something else was the conveyer, which took the nitrites into the stomach?

A. Anything which introduces the nitrites into the stomach in a quantity sufficient to make an impairment of health is, in my opinion, objectionable.

Q. Now, it is true, is it not, that nitrites are sometimes administered as a medicine through the stomach?

A. By some people it is.

Q. I think this medicine—this nitrite which you used, amyl nitrite, you inhale that, don't you?

A. Yes, sir, it is administered both ways, by inhalation and by ingestion.

Q. And when amyl nitrite is inhaled it is in the form of a little powder or berry, or something that is pulverized, taken through the nose?

A. It is put into a little glass case, and in that glass case there is some three or five drops. When the material is desired, that little glass pearl, they are usually called, is
422 put into the handkerchief and crushed, and the material is inhaled.

Q. Yes, sir, that is in a very concentrated form, isn't it?

A. That is pure nitrite of amyl.

Q. Yes, and you have it there in about as concentrated a form as it is possible for a chemist to get it, haven't you?

A. That is the natural form in which it comes, it is not hardly concentrated nor diluted; it is the natural form in which it comes.

Q. That is the pure stuff? A. Yes, sir.

Q. Now, is that what is regarded as an organic or inorganic nitrite? A. The nitrite of amyl?

Q. Yes, as you may have taken it through the nose.

A. Well, it would not make any difference whether it was organic or inorganic.

Q. Possibly, but I am asking just this—

A. If I understand your question correctly, the nitrite of amyl belongs to the group known as the alcohol groups.

Q. I still haven't got what I want you to tell me. Does it belong to a group that is called organic or inorganic nitrites?

A. Now, I don't know what you mean.

Q. I put it as plain as I can. Would this amyl nitrite which you have inhaled through the nostrils be regarded by chemists as an organic or an inorganic nitrite?

A. Well, I don't know that I have ever paid any attention to that sort of question, as to its being organic or inorganic.

Q. In other words, you can't tell whether it is one or the other?

A. It is a volatile material which entirely disappears after it has been released from the pearl, and evaporates wholly into the atmosphere just like chloroform.

Q. Yes. Now, you don't know of your personal knowledge from any investigation you have made that there is any nitrite or nitrite re-acting material in this flour at all, do you?

A. Not from any investigation that I have made, no, sir.

Q. And you don't know from any personal knowledge that there would be any of it in the bread, do you? A. No, sir.

Q. Nor anything about the amount of it? A. No, sir.

423 Q. You are simply assuming that it is true, and then you are giving your results based upon your general knowledge? A. Yes, sir.

Q. Now, what is the medicinal dose that is given where it is administered as a medicine and given through the stomach; I don't care about its inhalation, I want where it goes through the stomach. A. Of what?

Q. Of nitrite. A. Nitrite of amyl.

Q. No, of nitrite, I don't care what you call it, nitrite of amyl, or sodium nitrite, I don't care what it is, I don't care about where you inhale it, but if you are giving it to a patient through the stomach how much would be regarded as a medicinal dose?

A. A dose of the nitrite of soda is in the books—it is put down as from one to three grains, but I never gave three grains because I reached results with one grain that satisfied me that three grains was too much.

Q. The United States Pharmacopoeia lays down from one to three grains as a medicinal dose, doesn't it?

A. Yes, sir.

Q. Now, the amount of nitrite contained in this flour, as testified to, if reduced so as to ascertain the amount thereof in a loaf of bread, if my computation is correct, would show, that eating a loaf of bread three times a day, and taking two grains as a medicinal dose instead of three, as you give the limit, it would take a man just about one year, eating a pound of bread a day, to take into his system a medicinal dose. I simply mention this to show you something about how accurate the quantities are? A. Yes.

Q. Now, if I take into my system in some other form an amount of nitrite equal to that, it would do just as much harm, wouldn't it? A. Yes, sir.

Q. Now, whether it is in its natural state or not, it is true, is it not, that in swallowing the saliva, we do introduce into our system nitrites, don't we? A. Yes, sir.

Q. And it is true, is it, that we introduce into our system more nitrites than is contained, that is more nitrites in a day than is contained in a loaf of bread that I would eat;

424 is that not true? A. I don't know.

Q. Don't you know the amount that is contained in the saliva?

A. I do not know the amount contained in the saliva.

Q. Did you ever test any saliva to ascertain the presence of nitrites, and the amount?

A. I never examined it.

Q. You never did. Now, don't you know that it is true that the amount of nitrites contained in the saliva is in many instances twelve times as much as that contained in the flour.

A. No, sir, it is not, according to my reading.

Q. Well, you never made any examination of it, did you?

A. No, sir.

Q. A person who made the actual test could tell better, couldn't he? A. Possibly he could.

Q. Now, it is true, is it not, that nitrites are found at all times in the saliva of all people, is that not true?

A. Yes, sir, to a certain extent.

Q. Then from infancy up to old age a person is constantly taking into his system in the form of saliva the same nitrites which are contained in this bleached flour; is that not true?

A. Yes, sir.

Q. Now, are we to understand that according to your judgment human life is shortened and health impaired because of that? A. Because of what?

Q. Of the taking of nitrites into my system in the form of saliva?

A. I believe that the nitrites impair the health in the system in whatsoever quantity they may be taken; of course, if they were very, very minute in quantity, the conditions of repair going on in the system of a healthy man replace it, it is immaterial, that it has been destroyed, and so a very minute quantity is eliminated, but where that same material is introduced in a certain proportion, three times a day, right through life, you finally reach results which are injurious.

Q. But if it is true that nitrite is contained in the
425 saliva in quantities greater than contained in bleached flour, and that the average person is swallowing the saliva three or four or five times a minute, he is constantly from youth to old age taking into the system the same substance, and in quantities equal or greater to that which these parties claim is in bleached flour; is that not true?

A. Yes, sir; on your assumption.

Q. Doctor, I am simply assuming that, it is the same form of nitrite, isn't it?

A. Oh, yes, sir.

Q. And the results would be just as harmful whether taken in the form of saliva or taken in the form of bread, the amount being equal, would they not? A. Yes, sir.

Q. Now it is true that every physician recommends to his patient thorough mastication of food, don't you?

A. Yes, sir, I suppose they do; I do.

Q. You do, and by a thorough mastication of his food you mean the mixing it fully with saliva, don't you?

A. Yes, sir.

Q. And yet the more thoroughly it is mixed with saliva, the more of these nitrites he is taking into the stomach, isn't he? A. No.

Q. Isn't it true that the more saliva you take, the more nitrites you get?

A. No, because the saliva does not [excrete] nitrites; the saliva from the salivary gland itself does not contain nitrites.

Q. However, it is through the bacterial action, of what takes place, I mean?

A. They are introduced from that.

Q. All right.

A. And are produced in the mouth outside of the salivary glands, so that the more saliva that is [excreted], as you masticate food, the less nitrites you have to swallow.

Q. Total amount?

A. Less, the total amount would be less.

Q. Let's take a person who smokes, for instance, now that accelerates the amount of saliva, that is, some, doesn't it.

A. In some people and in some people it checks it.

Well, let's take those where it accelerates it, this
426 saliva comes in contact with whatever may be in the mouth and bacterial action takes place, does it not?

A. Yes, sir.

Q. And would not the amount of nitrites in the stomach be increased by that?

A. To the extent of the nitrites that were taken into the stomach, but as I say, the nitrite is not [excreted] by the salivary gland.

Q. I understand you said that, you don't need to repeat that unless you want to, but the amount of nitrites that would be taken into the stomach would be increased by this increase of the flow of saliva due to saliva, would it not?

A. No, sir, it would not.

Q. Would it be lessened?

A. In general effect it would be lessened, because there would be an increase of flow from the salivary glands and no nitrites coming from the salivary glands, the quantity, the residual quantity in the mouth would be lessened, and the amount swallowed would be lessened.

Q. But is true or is it not true that the more saliva you have, the more nitrites you have?

A. No, sir, that is not true.

Q. But it is true that the more you have the less you have?

A. Not put in that way. As I said before, the nitrites are introduced from the outside. Now with the increased flow of salivary juice you would, so to speak, wash away the nitrites that have been formed in the mouth, and if the flow was increased, you would have a lessened quantity in the mouth to swallow; that is what I want to make clear, pardon me, let me put it this way, if you please.

Q. All right.

A. If the salivary glands secrete or excrete the nitrite then with an increased flow from the salivary glands, you would have increase of nitrites, but they do not secrete nitrites.

Q. How do you account for the presence of nitrites in the mouth of a little child, a little baby?

A. Come from the outside.

Q. Well, outside of what? From the atmosphere or from nitrites in the atmosphere.

A. Or from something that has been put into its mouth.

Q. Take an infant child that is nursing at its mother's breast, how do you account for the presence of nitrites in its mouth?

A. The microorganism in the mouth of the child liberates the nitrites.

Q. And it was not present there in the mouth of that infant child, wasn't it? A. It is.

Q. And when it swallows it takes them into its stomach doesn't it? A. Yes, sir.

Q. Now can you tell the jury whether or not the amount of nitrites which an average person, adult, takes into the stomach, daily, in the form of saliva, equals or exceeds the amount taken in if he eats a pound loaf of bread made from this flour?

A. I am unable to give a comparison, because I never have investigated that.

Q. Now have you ever examined food products to determine the presence of nitrites in them?

A. Not by any chemical methods; I am not a chemist; I make no pretensions whatever to a knowledge of—

Q. You have made a study of foods, haven't you?

A. Yes, sir.

Q. Well, in all your study of foods, did it never occur to you, to make an examination of a particular product to determine the presence of nitrites?

A. I have examined of foods with reference to any substance which might be contained therein which I considered deleterious to health.

Q. All right. What ones did you examine then to determine the presence of nitrites?

A. More particularly canned goods.

Q. What in the way of meats?

A. No meats.

Q. None? A. No.

Q. Why not?

A. Because I didn't think it was necessary.

Q. You were looking for these things which might be deleterious to health, were you not?

A. Yes, sir.

Q. And didn't you regard nitrites as deleterious to health?

A. Yes, sir.

Q. Then why didn't you examine the meats to see if they were present?

A. Because I did not give decomposed meat to my patient.

Q. Let's take smoked ham, you use that in the family, do you not?

A. Very, very little.

428 Q. Why so?

A. Because I don't think it is healthy as other forms of meat.

Q. Are we to understand that in your judgment smoked ham is a deleterious food product?

A. It is difficult to digest, and so I consider not useful, as useful as other forms.

Q. Do you understand that in your judgment smoked ham is a deleterious food product because it contains nitrites?

A. Yes, sir, it would be if used as we use bread.

Q. Yes, sir, then if bread containing nitrites is deleterious, ham which contained nitrites is equally deleterious, is it?

A. If used in the same amount and containing the same quantity.

Q. Well, it is deleterious irrespective of the amount it contains, is it not? A. Which?

Q. Anything which contains nitrites?

A. Anything that contains nitrites is deleterious to health, but we must take into consideration the quantity ingested.

Q. Yes. If the amount which is contained in a pound of smoked ham exceeds the amount which is contained in a pound of bread made from this bleached flour, then the pound of ham would be more deleterious than a pound of bread, wouldn't it?

A. Yes, sir, but as I said before you don't use a pound of ham three times a day in your life.

Q. You don't use a pound of bread three times a day?

A. A good many use a pound of bread, come to more than a pound of bread.

Q. It may differ in degree but not in kind?

A. The nitrites are all in kind but differ in degree.

Q. Did you ever make an examination of meat to see whether it contained nitrites? A. No.

Q. Did you ever use bacon in your family?

A. Yes, sir.

Q. Now you have an examination of food products to see whether or not they contain anything which is deleterious?

A. I have.

Q. Did it ever occur to you to examine bacon to see whether or not it has nitrites? A. No.

Q. If it does contain nitrites it is just as deleterious as bread which contains nitrites, isn't it?

A. If in the some quantity, yes.

429 Q. And if in a greater quantity then it is more dangerous, isn't it? A. Yes, if it contains more.

Q. Did you ever examine corn starch to see if it contained nitrites? A. No, sir.

Q. Do you ever use that in your family?

A. Yes, sir.

Q. How does it come you never examined that?

A. I didn't think it was necessary.

Q. If it does contain nitrites it is equally injurious with bleached flour, is it not?

A. Anything that contains nitrites is injurious and the more nitrites the more injurious.

Q. If the air you breathe contains nitrites it is injurious to health, is it?

A. Yes, sir, it has sufficient nitrites in the air to kill a man.

Q. Now in your practice doctor, covering a great many years, have you ever had a patient whose case you diagnosed as being nitrite poisoning due to nitrite contained in the food he had eaten? A. No.

Q. In all your practice as a physician have you ever known a person who is suffering from nitrite poison due to the nitrites contained in anything he had eaten? A. No.

Q. Did you ever hear of a person in medical journals or otherwise, in your profession, where any person was suffering from nitrite poisoning due to nitrites contained in the food he ate? A. Yes.

Q. Where was that?

A. In the hospital of which I had charge.

Q. That is twenty years ago?

A. No, that is less than 20 years ago.

Q. Let us know something about that; where was it?

A. In the Norman Hospital for the care of insane.

Q. Did you have any personal knowledge of that?

A. Yes, sir, it was one of my own patients.

Q. Was that a patient who was suffering from nitrite poisoning due to what he had eaten in the way of foods?

A. Yes, sir.

Q. What was the food? A. Sausage.

430 Q. Sausage? A. Yes.

Q. Well did you diagnose it as due to the nitrites in the sausage?

A. In the post mortem examination we did.

Q. Did you before?

A. We suspected but we couldn't tell.

Q. Did you ever have another case under your observation? A. Of what kind?

Q. Of a person who was suffering from nitrite poisoning due to the foods he had eaten?

A. Not that I am aware of.

Q. Did you determine that the nitrites in that next case was due to the nitrites in the sausage? A. Yes, sir.

Q. Was that a case of what in ordinary experience we call ptomaine poisoning?

A. It was different from what we ordinarily speak of as ptomaine poisoning, much more severe.

Q. Much more severe? A. It ended in death.

Q. Now has there ever been a case within your personal experience where a person eating food, outside of these cases you have mentioned, of sausage, where a person eating any kind of food has contracted a case of either acute or chronic nitrite poisoning? A. Yes.

Q. Where was that?

A. In my practice and in hospitals, as I stated, perhaps I did not make myself clear in my investigation with reference to the use of foods, I came to the conclusion that the bleached flours that we are getting, after I found out that it was bleached, acted deleteriously as a poison, to use your words, and stopped the use of them.

Q. And when was that?

A. Because of the effect it produced upon the health of the patients; when it was stopped and other material was [—] the patients began to gain.

Q. When was that, doctor, that was 20 years ago?

A. Yes, sir.

Q. You don't know that flour was bleached 20 years ago?

A. No, not 20 years ago, I didn't say, I beg pardon if you thought 20 years ago.

Q. I said 20 years?

A. I didn't hear you; I thought you said 10 years ago.

431 Q. How long was it? A. About ten.

Q. Did you know of bleach 10 years? A. Yes, sir.

Q. How was it bleached? A. I don't know.

Q. Have you ever examined to see whether it was bleached?

A. No.

Q. Did you ever examine it to see whether it contained nitrites? A. No.

Q. Well, then why do you say it was bleached?

A. Because I was told it was.

Q. Well, then that is all you know about it, somebody said it was bleached?

A. The miller who produced the flour stated that there was a method now of bleaching flour, and it was suggested to me that as we used about five barrels a day, that that flour could be sold to us at a cheaper rate than patent flour, and notwithstanding that fact I discarded that bleached flour, and had the flour made from the whole kernel of the wheat, as stated.

Q. You discarded patent flour twenty years ago, didn't you?

A. I did, yes, sir.

Q. And were your objections to the patent flour on the same ground as your objections to this other flour?

A. No, I objected to patent flour on the ground that certain parts of the kernel of wheat are removed in the process of making patent flour, which are wholesome, and are needed as an aid to digestion.

Q. Well, I didn't know but you and I would agree on that, that the whole wheat flour is probably better than any sort of patent? A. Oh, I know it is.

Q. Whether it is 40 per cent or 75 per cent, but what I was trying to ascertain, doctor, was whether or not you have ever had a patient under your observation who had poisoning of the kind diagnosed as nitrite poisoning, due to the nitrite contained in anything he had eaten?

A. Except as I stated, no.

Q. Now isn't it true that there are many substances which if taken in sufficient quantities produce harmful results, but which if taken in very diluted form or very small quantities
432 produce either no result at all or else produce a beneficial result; isn't that true?

A. I don't know of any harmful material, if taken in minute quantities and for long periods of time at all, can be beneficial.

Q. Well, if I take into my stomach half a pint of ordinary table salts, it would produce very disagreeable results, wouldn't it, and probably kill me, isn't that true?

A. No, I don't think it would kill you.

Q. Well, it would produce a very grave disordered condition of my stomach, wouldn't it?

A. No, it would make you vomit and you would get rid of it.

Q. Well, do you want the jury to understand that no harmful results would come if I took into my stomach half a pint of salt, [rather] than to make me vomit?

A. Well, the effect of the vomit might be very harmful, for it might produce a spasm, but as far as any ulterior harm is concerned, there would be very little, if any.

Q. But if I take a small amount of salt it does me good?

A. Because it belongs to the system, is a part of the system, and a person could not live without taking a certain amount of salt.

Q. Is nicotine a part of the system? A. No, sir.

Q. How much nicotine could I take without its producing death?

A. That depends on the individual's ability to resist the encroachment of the nicotine poison; some can use a good deal and others can use but very little.

Q. Now, there isn't any person but what if you put into their system either hypodermically or otherwise, a sufficient amount of nicotine it would kill them? A. Oh yes.

Q. And yet, if I smoke a cigar, do you say that that is producing the same results, only in a smaller degree?

A. Yes, sir.

Q. So that can be taken as a fair test of your entire line of reasoning, that since if I take a sufficient amount of
433 nicotine, it will kill [you], therefore if I smoke a cigar, it is killing me to that extent; is that right?

A. It is injurious, there is no doubt about it.

Q. To a certain extent, and the same system of reasoning is applied by you in the dealing with bleached flour which contains nitrites as you use in dealing with nicotine?

A. Yes, sir.

Q. In other words, if I take enough of it, it will kill me?

A. That is right.

Q. Therefore, if I take any of it, it will kill me to that extent? A. Yes, sir.

Q. And the nitrites which I take into my stomach in the shape of smoked meat or bacon or of any other food product, is exactly the same kind of nitrite which I take into my system in the way of bleached flour? A. That is right.

Q. And if it is injurious in one, it is injurious in the other?

A. That is true.

Q. And if it is not injurious in one, then it is not injurious in the other, isn't it? A. That is correct.

Q. Can you remember the time when the human race has not been eating smoked meat? A. I do not remember it.

Q. Can you remember the time when the human race has not been eating bacon? A. No.

Q. And you sure can not remember the time when individuals have not been taking nitrites into the system by way of saliva, can you? A. That is true.

Q. And it is always the case that we are taking it into our system when we inhale the air, isn't it?

A. Yes, sir, in a very small extent that is true.

Q. Now the rain which falls and goes into the cistern, as the rain comes through the atmosphere it takes up particles of nitrite and takes it into the cistern water doesn't it?

A. That depends on whether the water has been boiled—

Q. I say the rain as it falls from the clouds and runs into the cistern?

434 A. Cistern?

Q. Yes, when it gets into the cistern?

A. I thought you said "system".

Q. It has nitrites in it, hasn't it? A. Yes.

Q. Now by running that rain water through a filter to draw it into the kitchen sink, will abstract the nitrites from it?

A. Not all of them.

Q. Then if I use that cistern water I am taking nitrites into the system, am I not? A. Yes.

Q. The same kind of nitrites as if I use bleached flour?

A. Precisely.

Q. And if bleached flour will tend to kill, these others will do the same thing, won't they? A. Yes, sir.

Q. One just as bad as the other? A. Just exactly.

Q. And one is no worse [that] the other? A. Not a bit.

Q. So you place the nitrites that are contained in the human saliva, the nitrite in the air, the nitrite in the water, the nitrite in the bacon, the nitrite in ham, and the nitrite in bleached flour all in the same class?

A. It is all nitrite.

Q. Yes, and one is just as good and just as bad as the other? A. Yes, sir, and its effect.

Q. And the effect on the human system would be just the same if taken in one form or the other?

A. Yes, sir, depending on the quantity taken.

Q. Now I believe you said you never made any examination of the bleached flour yourself? A. No, sir, I did not.

Q. You never made any examination of any bread from bleached flour? A. From what?

Q. Bread from bleach flour, you never made any examination of it? A. You mean a chemical examination?

Q. Yes, yes. A. No, sir.

Q. Now you speak about the action of this nitrite when taken into the system, coming in contact with some of the particles of the blood, and the effect it has on them.
435 Do you know what would be the effect upon the blood if ozone were introduced into the air and inhaled in the lungs?

A. Yes.

Q. How would that effect compared with the effect which you have described as resulting from the taking of nitrites into the system? A. It is almost the opposite effect.

Q. What is the effect which you found from the taking of ozone?

A. That depends of course, upon the extent to which it is diluted, ozone is an element which is not to a certain extent healthy, if it is taken in great quantities it would be harmful.

Q. What would be the effect if taken in great quantities, harmful in what way?

A. It would produce a disturbance in the circulation.

Q. And would not that disturbance be exactly the same as that which you described from the taking of nitrite into the system? A. No, sir.

Q. What would be its effect? A. What effect?

Q. Taking the ozone in large quantities?

A. The immediate effect would be a sense of suffocation, causing an irritation in the throat, an irritation of the lungs.

Q. Is the sensation what you describe as the result from the nitrites?

A. After that is removed that is the end of it.

Q. There is one question, I don't know whether you made it clear or not. This sausage that you found produced death in this person. Did you examine that sausage and examine the amount of nitrite or nitrite reacting material there was in it?

A. Not as to the quantitative, but to find out that it was there, yes.

Q. But you don't know anything about the amount of it?

A. No, sir.

Q. And that was how long ago?

A. To the best of my recollection that is about 15 years ago.

Q. How did you test it to determine the presence or absence of nitrites?

A. In the laboratory connected with the hospital there was a case of re-agents, and the material for determining the test was prepared there and made from it as the test is applied here to flour, that is the color test.

436 Q. But now as a matter of fact didn't you at that time diagnose that at the time as a case of ptomaine poisoning?

A. No, sir, the symptoms were all so different from ptomaine poison, and we were unable to determine just what the condition was, as I say, until after the post mortem was made.

Q. Where had this sausage been?

A. Where had it been kept? It was sent to the party from her home.

Q. How prepared, how packed?

A. It was sent in a box with some bread and cake.

Q. Can you give me the name of this miller from whom you got bleached flour ten years ago?

A. No, I can not, the mill was located in Omroce, Wisconsin.

Q. You did not examine any of this flour yourself to see whether it contained nitrites? A. No, sir.

Q. And you don't know anything about how it is bleached, or where it is bleached, or the process by which it is bleached, or anything else upon the subject?

A. Only as I was telling.

Q. You were not told that he had an Alsop bleacher there?

A. No, sir.

Q. And you simply have no knowledge of that? A. No, sir.

Q. And you made no examination of the flour to ascertain whether or not it did contain nitrites or not? A. I did not.

Redirect Examination

By Mr. Butler:

Q. The Alsop process seems by this evidence to have been patented in the year 1904—I think, Mr. Elliott, do you remember the date, 1904, is that the date?

Mr. Elliott: I think so.

Q. Do you know whether this incident that you refer to with the miller at Omroe was before or since that date?

A. I could not fix the date positively.

Q. Well, I know, but you said it was about ten years ago. Now the patent we have, called this an improved process, and it is 1904, and I suppose the point Mr. Smith is driving at was that this was before the Alsop process. Now

437 I would like to, if you can, tell me according to your recollection whether or not this incident occurred with this miller before 1904 or since that date; 1904 would be six years ago, in May, this thing was patented?

A. My impression is it was before.

Q. You think it was before? A. Yes, sir.

Q. Mr. Smith in one of your questions, Dr. Kempster, you said that the United States Pharmacopoeia gave the dose of nitrite of sodium at from 1 to 3 grains?

Mr. Smith: The witness said, I asked him what he gave, and he said from one to three.

The Court: He asked what the national pharmacopoeia gave it.

Mr. Butler: I understood Mr. Smith to say from one to three.

The Court: Well, he put it perhaps.

Q. I want to call your attention—this is the book you refer to, isn't it, it says the average dose is one grain.

Judge Scarritt: I object. Mr. Butler misquotes Mr. Smith.

Mr. Smith: I have to say that I am not familiar with the United States pharmacoe pia. I simply know what these doctors tell.

The Court: What is that book?

By Mr. Butler:

Q. This book is labeled "The Pharmacoe pia of the United States, Eighth Decennial Revision," and it was revised in 1900 by authority of the United States Pharmaceutical Convention, held at Washington, A. D. 1900.

Mr. Lyons: Revised two or three years ago.

By Mr. Butler:

Q. And I will ask you if you know whether that is the latest edition and whether it does not give the average dose 65 milligrams, one grain, equal to one grain, as the average dose, I think?

A. Yes, sir, this is the United States Pharmacoe pia.

438 By Judge Scarritt: He asked if that was the last revision.

By Mr. Butler:

Q. Yes, is it the latest edition or do you know about that?

A. I don't know that there is a later edition; there could not be a later edition because it is only revised, I believe, once in ten years.

Q. So there would be another one about due now?

A. Yes, sir.

Mr. Butler: About ten years old.

By Mr. Scarritt:

Q. They have supplements, however, do they not, doctor?

A. Beg pardon.

Q. They have supplements they send out supplements making changes in the formulae.

By the Court:

Q. Send out leaflets and supplements, something of that kind? A. Yes, they do, yes sir.

By Judge Scarritt:

Q. You don't know whether they changed that average dose in these supplements or not, do you?

A. No, I do not.

Judge Helm: I understood—I have the notes here—that the witness testified that the dose prescribed by physicians

was from one to three grains, and then Mr. Smith asked him if that was the dose prescribed by this book, and he said it was.

Mr. Butler: He said he never prescribed more than one grain.

Judge Helm: But he said that was the average dose, the dose used.

Witness: I stated it was given in the books from one to three grains, but I personally had never given more than one grain.

439 By Mr. Butler: (resuming)

Q. Does the injuriousness of taking nitrites increase as the quantity increases? A. Yes, sir.

Q. The injuriousness increases as the quantity increases. Are there many foods which are injurious which do not directly produce death, are there many foods which are unwholesome, or adulterated, or injurious, which do not directly produce death like a dose of poison?

A. They produce symptoms which indicate that the system is being affected injuriously by the ingestion of the material.

Q. Why is it that decomposing food in which increasing quantities of nitrites exist as decomposition progresses, is not a good food, or is an injurious food; you have testified that it is injurious; now tell why?

A. Because the increased liberation of the nitrites increases the quantity of the poison that is absorbed and as decomposition increases, the quantity of nitrite increases.

By the Court:

Q. What do you mean, an over-ripe bannana has got more nitrites in it than a fresh one? A. Yes.

Q. Or over-ripe apples?

A. Or, what is more to the point, a ham which is spoken of as a little strong, meaning that there is some decomposition in the ham, contains more nitrites than a ham that is fresh.

By Mr. Butler:

Q. How with respect to stale, unpreserved vegetables, such as are found in markets, sometimes?

A. My judgment is that the amount of nitrite in fresh vegetables is very small, I think it is a very limited quantity, and probably attached to the vegetables on account of the soil in which it is raised, and does not come from their air, or from other sources, unless it has been washed in water that is impure, containing nitrites.

By the Court:

Q. Just one matter, I would like, for my own information, and curiosity, nothing to do with this case.

1440 You speak of a certain grade of corn meal fed to Italians? A. Yes, sir.

Q. Is that in the books or did you learn that from history?

A. I learned that from personal observation, and it is in the books, the Italian government has now created a commission to prevent the consumption of maize meal made from corn.

Q. What kind of corn?

A. It is the kind of corn they grow there; it is an inferior quality to ours, decidedly.

The Court: Well, I will not pursue it. I occasionally get a thought here myself.

Hamilton Pope Jones, was called as a witness, and having been duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live, Dr. Jones?

A. New Orleans, Louisiana.

Q. What is your profession?

A. I am a practicing physician.

Q. Will you state fully your work of preparation and education and professional experience, as well in public as in private affairs affecting subject matters related to your profession?

A. I graduated in medicine from Tulane University.

Q. That is at New Orleans?

A. New Orleans, Louisiana, in 1894. In 1897 I had charge of the yellow fever hospital in New Orleans. In 1898 I took part in the active campaign in Cuba. After the necessity for surgical work stopped, I had charge of a large field at a yellow fever hospital there. In 1905 I had charge of the yellow fever hospital again in New Orleans. I was for a number of years assistant to the Professor of Chemistry, Medical Jurisprudence and Toxicology at Tulane University, and from 1894 until 1907 I was Administrator of Chemistry in the Medical Department of Tulane University. Since that time I have changed my branch of teaching to that of clinical medicine and diagnosis during my work in the wards of the Charity Hospital at New Orleans. For about a year and a half I was chemist in the State Hospital, known as State Analyst, and for the past eight or nine months I have been Food Commissioner of the State of Louisiana. In addition to which I have a general practice.

Q. Your time is not wholly given, then, to your official work? A. No.

Q. You are an officer of the State Food Department, as well as a teacher in the Tulane University. Is that the State University of Louisiana?

A. Tulane University is an endowed institution. It was under another name formerly, a state institution, and there is a question as to whether it should receive state support or not. It does not as yet.

Q. In addition to your work as official teacher in the University, you also engage in general practice of medicine at New Orleans? A. Yes.

Q. Have you had any special work in the matter of the study of water and foods? A. I have.

Q. Will you give the extent of that?

A. As State Analyst I had to examine a great variety of foods, and inasmuch as the water supply of the state of Louisiana had never been thoroughly studied, I undertook to make a more or less comprehensive examination of the water supplies of the various cities and towns throughout the state. In addition to that my attention was particularly drawn to contamination of waters by the death and destruction of fish in various bodies of water throughout the state, coming about as the result of the death and decomposition of low forms
442 of vegetable life called algae.

Q. What is that, sea-weed, or something like that?

A. It is a vegetable plant, small plant—different varieties.

Q. Are you familiar with the substance known as nitrogen peroxide gas? A. I am.

Q. And the nitrites from the combination of that gas, nitrous acid, with organic and inorganic matter? A. I am.

Q. Have you made any particular studies or investigations for the purpose of ascertaining whether or not nitrites are to be found in vegetable and animal bodies as a normal constituent, or otherwise? A. I have.

Q. Will you detail to the jury your investigations in that regard, and the results arrived at?

A. So far as the vegetables are concerned that I speak of now, I thought that the fairest test should be made upon vegetables procured in the markets of the city, so I procured some thirty varieties of staple vegetables, including roots, turnips, potatoes, sweet potatoes, lettuce, celery, cabbage, beets, radishes a great variety, and pumpkins, bananas and apples—some thirty-odd in number. I examined the exterior of these vegetables for nitrites and also the interior for nitrites, and the results of my conclusions are that it frequently happens that if the vegetable is grown in soil that contains decomposing organic matter like fertilizer, together with nitrifying bacteria,

that the surface of the root or the plant may contain nitrites, or may have nitrites on it, but careful sections of these vegetables made in such a manner as to preclude the possibility of a nitrite from the surface getting onto the interior—for instance, being carried across by a knife,—taking precautions against that, I find that no vegetable in its interior structure contains nitrites, unless that vegetable be in a state of decomposition. If the vegetable is decomposing or rotting, it may get nitrites in its interior, but never under any other circumstances.

443 Q. Did you enumerate all the vegetables you examined?
A. I did not.

Q. Have you a memorandum by which you may refresh your recollection and make a complete specification of those that you did examine?

A. Parings of the vegetable surfaces were used while, as I said, adequate steps were taken to protect the interior of the vegetable substances examined from contamination from the outside.

Take celery: Outside of the root. Inside of the root, negative. Outside of the stalk, negative.

Q. When you say negative, you mean no nitrites?

A. I mean no nitrites. Now, you must, in order to understand this, realize that farmers, in preparing their vegetables for market, are more or less careful. Some of them thoroughly cleanse and wash their celery and other vegetables, and if they are washed thoroughly and carefully, you may get a negative result on the surface of the root, but in none of the cases did we get a nitrite reaction for the interior.

Turnips—a variety of that is rutabaga roots: Outside of root, covered with soil, positive; inside of the root, negative.

Q. What does “positive” mean?

A. Gave reaction for nitrites. Kohlrabie, another variety of turnip: Outside of the root, above the ground, negative reaction for nitrites; inside of the root, above ground, negative reaction for nitrites. Turnips: Outside of root, faint reaction for nitrites; inside of root, negative.

Cabbage head: Outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Mustard Greens: leaf: Negative reaction for nitrites.

Spinach, outside of root, faint reaction; inside of root, pink coloring matter dissolved by acetic acid of the same strength as that which we use as a test for nitrites, consequently, as this pink coloring is dissolved by the acid, this test is of no value on the pink portion of spinach, because

444 you cannot tell whether the pink color is due to the dissolved color made in the acid, or to the nitrite action. The nitrites may be present, but they don't show, and the test is of no value.

Lettuce, outside of leaf: Negative reaction; inside of leaf, negative reaction.

Cauliflower head, outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Squash, outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Egg plant: Outside, a little spoiled, positive reaction for nitrites. That was crude egg plant beginning to spoil, but the inside sound portion gave negative reaction for nitrites.

Pumpkin, outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Sweet Pepper, green; Outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Ripe banana; Outside of rind, negative reaction for nitrites; inside of fruit, negative reaction for nitrites.

Potatoes, young new potatoes; Outside, faint reaction for nitrites; inside, negative reaction for nitrites.

Half grown potatoes: Outside, positive reaction for nitrites; inside, negative reaction for nitrites.

Full grown potato: Outside, positive reaction for nitrites; inside, negative reaction for nitrites.

Sweet potatoes: Outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Carrots, root; Outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Radish, root; Outside coloring matter dissolved by acetic acid in various strengths from the strongest down to the strength used in this measure. The coloring matter is dissolved in acetic acid, consequently the test is of no value. The same is true of the beet root, which gives a pink color.

445 Acetic acid dissolves out the coloring matter.

Parsnips, root: Outside, negative, inside, negative. I take particular trouble to explain this dissolving of coloring matter because you have to discard the matter of tests for nitrites in any vegetable that contains pink coloring matter; can't use it.

Onion, root; Outside, negative reaction for nitrites; inside, negative reaction for nitrites.

Artichoke; root:—that grown in the ground, outside, positive reaction for nitrites; inside, negative reaction for nitrites.

I took in addition to these a number of flowers, such as rose, different varieties of rose, different varieties of sweet pea, gladiolas, and several other pink varieties of flowers, and I found that coloring matter of all vegetables is soluble in acetic acid of the strength of the Gries-Ilosvay method.

Q. That is the name of the gentlemen who got up the test?

A. Yes, Gries-Ilosvay—two names.

Q. Now, I notice in some instances, in case of the analysis made of these various vegetables, you found the test to give positive or affirmative results on the outside? A. I did.

Q. What is your explanation of that?

A. My explanation is this: That organic matter, such as leaves, fertilizer, manure, things of that kind, indicate decomposition and preparation for being turned into a food substance by a great number of bacteria under the general family name of saprophytes, to which belong several families of bacteria that produce nitrates and nitrites. They are called nitrifying bacteria. Now, if the organic material in the soil is undergoing decomposition, all of these nitrifying bacteria—of course the soil that is on the root, when the root is pulled from the ground, is going to contain nitrites which will give the reaction, but under no circumstances are the nitrites ever found in the interior live part of the plant.

446 Q. As to meats, have you made any examination of, or have you any special knowledge with respect to the presence of nitrites or nitrite reacting material in meats?

A. I have examined fresh meats of different varieties. I mean beef, mutton, fish, live and shell fish, and I have never found nitrites present in any fresh meat of any variety.

Q. Now, as respects cured meats, like smoked ham which has been mentioned. Have you made examination of them?

A. I have.

Q. With what result? A. Find nitrites present.

Q. Something has been said about the presence of nitrites in the saliva of human beings, adults and babes. Have you made any study of that subject? Tell us first what the fact is in that regard, and what are the sources of the nitrites so found?

A. I examined the saliva of some eighty individuals. I examined for instance, the saliva of every member of my particular section of the medical class which was in the ward at that time,—some 25 supposedly healthy young men. In addition to that I examined the saliva of young children, females, and a lot of people who were sick for various diseases—pneumonia, dysentery, diarrhoea, typhoid fever, rheumatism, and a number of diseases I don't remember just at the moment, but at any rate, I attempted to examine the saliva of a large number of people who were both in health and in disease, and in varying degrees of age, strength and decrepitude. I examined the saliva from one child at the breast—a child of about seven months old. In every instance I found nitrites present in the saliva, and not a single instance did I find nitrites absent.

Now, in order to determine as to whether nitrites were a secretion of the salivary gland, the parotid gland, the sub-

lingual glands, or whether they were formed of decomposing food in the mouth, I took a fine catheter and under proper precautions, I put this catheter into the duct of the parotid gland, just in the same way as a catheter is introduced into the bladder, and withdrew the pure saliva from the parotid gland of
447 seven individuals. Now, in no instance did I find nitrites present in the pure saliva juice. That is the first series of experiments.

Then I secured pure sub-lingual secretion from the sub-lingual glands of three individuals, uncontaminated by any secretion from the mouth, and in none of these instances did I find nitrite reacting material present. Fearing that the question might be raised as to whether a mixture of parotid gland secretion of the mouth and the sub-lingual gland secretion might not produce nitrite reaction, I secured parotid gland secretion pure from three separate individuals, and mixed them with the pure sub-lingual secretion from the same individuals, and in no instance with the mixed parotid and sub-lingual secretions did I get a nitrite reaction. In other words, it proved conclusively that nitrites do not come from those glands that secrete what we ordinarily know as saliva.

Q. You spoke of the parotid gland and the sub-lingual?

A. Yes.

Q. They are both in the mouth. One is above the tongue and the other under it?

A. The parotid has its opening in the side of the cheek; the sub-lingual has its opening beneath the tongue.

Q. Did you make any further examinations of secretions or excretions of the human body for the purpose of finding whether they eliminated nitrites—the urine and feces?

A. I examined a number of freshly passed specimens of urine—some thirty in number, and found nitrites were not present in the urine. I examined freshly passed feces from ten individuals, some of them with bowel complaint, in the female, typhoid fever—some of them in health. In no instance did I find nitrite reacting material present in the feces.

Q. Now, doctor, to what do you attribute the presence of nitrites or nitrite reacting material in the saliva in the mouth of these eighty cases, we will say, that you have found? You say it does not come from the glands which secrete the saliva; it is not in the saliva when taken directly from the gland;
448 now, how do you explain that presence in the saliva, or find it large, so to speak in the mouth?

A. The mouths of all individuals, whether they are those of young infants without teeth, or older persons, contain the remains of particles of that which has been eaten. This indi-

cates decomposition; in other words, it rots in the mouth; and one of the effects of the decomposition or rotting of material containing—of organic material containing nitrogen, is the formation of nitrites. Protein, albumen, white of egg—all proteins or vegetables left in the mouth will decompose, and the extent of nitrite reaction with any given individual in my experience has been the degree of care with which that individual looks after his mouth.

Q. Now, with respect to the examination of water; are nitrites sometimes found in water—spring water, well water, deep well water, etc?

A. They are sometimes found.

Q. And in such cases what is the source, or what are the sources of nitrites so found? How produced?

A. As a rule, nitrites found in drinking water or surface well waters, and all waters except rain water, are the result of decomposition of organic material and indicate that that water is being actively polluted by something which may be decomposed—as a rule.

Q. Have you had any special experience with the discovery of nitrites in water from various deep borings?

A. I have.

Q. Will you explain that and the sources of the nitrites there?

A. Well, you have nitrites possible in water from very deep wells from one of several sources. In the first place, if the water contains nitrates, nitrates may be reduced to nitrites by certain substances in the water; some iron salts, for instance, will do that. Then, you may have sealed up in the bowels of the earth organic matter that has been filtered through the sand or any other permeable material in the soil, and that may be preserved, just as you might have a can of

apples preserved; they will keep for a long time; only
449 in the case of the water that lies very deep down, it

has been, you might say, canned for centuries, but the organic matter has not been in contact with the air, and with the particular varieties of bacteria which may decompose it, so that it does not show a nitrite reaction until after opportunity for that has shown itself. Then again, water from deep wells may be accidentally contaminated by springing a well with a charge of nitro-glycerine, so that in the course of the work on the analysis of waters, we tried to get a history of the geological strata through which the well had gone, and the physical surroundings of the well, but in the absence of data at all, we condemn water that contains nitrites because it indicates that that water may have been contaminated from

organic sources—perhaps human excrements or urine—which has been decomposed, and that is always possibly accompanied by those germs which may cause disease—cholera, typhoid fever, Cochín-China diarrhea and diseases of that sort.

Q. You are familiar with the gas known as nitrogen peroxide gas? A. I am.

Q. And the salts known as nitrites? A. I am.

Q. You may tell us what they are, their characteristics as to being poisonous or otherwise.

A. You mean physical or chemical characteristics?

Q. What I am trying to get at is this: Whether nitrogen peroxide gas is a salubrious medium or a poisonous one.

A. Nitrogen peroxide gas is a poisonous gas.

Q. Now, as to nitrites, such as are found in decomposing organic matter and in the waters of wells and other sources of supply?

A. They are poisonous.

Q. What source or sources are there, if any, for the production of nitrites other than decomposition of organic matter and the electric spark or flaming arc which was described in the patent of the Alsop process?

A. Other than those two?

450 Q. Yes.

A. You might have, under given conditions, nitrates reduced to nitrites.

Q. In addition to the two sources I have mentioned?

A. Yes. You may have bacteria which will reduce nitrates into nitrites as well as bacteria that will produce nitrites from decomposing food, making a final product which is called nitrates, which is the valuable fertilizing constituent that we get ultimately from manure and other things.

Q. Then it works both ways: Nitrites are nitrified by certain bacteria, and nitrates are nitrated so as to become in some instances valuable as fertilizing material—is that it?

A. I don't catch that.

Question repeated in part as follows:

"Q. Then it really works both ways: Nitrites are nitrified by certain bacteria"—

Q. Nitrites reduced to nitrates by certain bacteria?

A. That is, you mean by being nitrified. The decomposition of organic matter, so far as nitrites formed are concerned, ultimately after the process is completed, results in the formation of nitrates which are valuable fertilizing constituents; but the moment that nitrate is reduced to a nitrite, it is a poison, both for animals and for plants, and no longer has properties of value as a fertilizer.

Q. Are waters containing nitrites approved for families, or disapproved, and why?

A. If the source of the waters is not known, they are condemned, because the presence of nitrites is the hall-mark of decomposition in water; we don't know the origin of it; it contains nitrites, and we naturally suppose that that water has been contaminated with organic matter—bowel discharges or urinary discharges of people and of animals. Those people may be ill with typhoid fever or some other disease, and
451 the nitrites point the finger of warning that these diseases may be contracted in that way.

Q. Nitrites are sometimes given for medicine?

A. They are.

Q. Are you familiar with the effect of the taking of nitrites into the stomach on the person who takes them?

A. The effect of nitrites taken into the stomach—the usual form in which nitrites are administered is sodium nitrites—is to reduce blood pressure, and if these doses are kept up for any length of time I found that the stomach becomes irritable and the digestion of the patient is disturbed. Nitrites are rarely given except to accompany certain specific things. They are usually given to break a very serious condition of disease in which we have to feel that the harm possible to be done by the nitrites is less than that of not controlling the particular condition of disease that demands their use. But one of the difficulties we have in administering nitrites is disturbance caused to digestion.

Q. What is the character of that disturbance?

A. Less of appetite, nausea, some vomiting, if persisted in.

Q. Now, with respect to the quantity required to cause observable disturbance, whether administered at one time or by a series of administrations, can you give us some view of that?

A. I have never used more than a dose of a grain at a time, but it is a usual rule that it is not possible to continue the use of the nitrite of sodium, say in a one-grain dose three or four times a day, longer than from eight days to two weeks. Some people have tolerance for it, but it is rare, and usually ends by upsetting the digestion.

Q. Do nitrites have any effect upon the blood?

A. They do.

Q. Will you describe that to us?

A. Nitrites have the power of uniting with the red coloring in the red blood cells, forming with them a definite compound, which compound prohibits the cell from doing its duty, that is, in carrying oxygen from one part of the body to the other, and doing the other things it ought to do. It
452 does not deprive blood of its oxygen per se, but the effect of the nitrites is very similar to nailing up the

door of a street car and the street car, then, with the people in it, circulates around the tracks as a foreign substance neither doing anyone any good or performing its proper functions. It lacks the hemoglobin in such a way that it cannot carry the oxygen.

Q. But such effect does not require any particular quantity, to produce some such chemical change in the red corpuscles of the blood?

A. If they are mingled. The peroxide nitrogen, you have to have a certain definite combining power with some red blood, so that the question of the harm done to the individual is directly in proportion to the amount of nitrogen peroxide taken by him.

Q. Is this action you refer to on the blood a direct action in the nature of chemical action that acts in obedience to chemical laws?

A. It is a directly chemical action, and is as certain to follow, when these things are brought into contact with each other, as the law of gravity.

Q. Has the taking of nitrites into the stomach in food or by other means any effect upon blood pressure?

A. I have made observations with doses of nitrite of sodium of varying strength. I have found that the larger the dose the greater the effect, and as I diminished the doses on the same individual, that I had a proportionate diminution in the effect of the nitrites. There comes a time when the instruments are not delicate enough to record these varyings of blood pressure, but after the thing has fallen with the varying amounts given, proportioned according to a certain law, it is reasonable to suppose that no matter how small a dose you are going to give, you will have some effect from it—proportional effect.

Q. Have you made any examination of flour, bleached flour, containing nitrite reacting material? A. I have.

453 Q. And also of flour containing no such material?

A. I have.

Q. Have you determined whether or not bread made from flour containing this nitrite reacting material will contain nitrites or not? A. I have, and found that it does.

Q. Now, as to the amount, in proportion to the amount in the flour and in a given amount of flour, would there be the same or a different amount in the bread made from the flour?

A. There would be less in the bread made from the flour.

Q. What relation, if you can give us some indication of that, according to your observation?

A. I have no definite quantitative determinations on that.

Q. The color is the means by which the test is made, I believe, in nitrites.

A. Yes.

Q. And it has been described, that certain standards are fixed, and the color of the specimen and the reaction procured from the specimen under investigation is compared with various standards? A. Yes.

Q. And in your examinations of the presence of nitrites in bread made from bleached flour, you did make a quantitative test? A. I did not.

Q. Or compare with the amount in the flour used to make the bread? A. No.

Q. Now, as to the effect upon health—the consumption of food made from flour containing nitrites, can you give us any information upon that?

A. Nitrites or nitrogen peroxide is a definite substance which has a definite power of combining with certain elements of the blood, and the effect upon the health will be directly in proportion to the amount of nitrites taken, no matter what the source of the nitrites may be.

Q. What is the character of that effect, whether benign or injurious? What is the character of the effect, good
454 or bad? A. Bad—injurious.

Q. And in the ways you have described—effect upon the digestion and the blood. Have you made any investigations to determine the effect upon digestibility of flour or food made from flour containing nitrite reacting material, as compared with flour or food made from flour containing none?

A. I have not made them directly, but I supervised some others by checking some experiments made by Professor Mann of New Orleans.

Q. Professor Mann is here, is he not? A. Yes.

Judge Scarritt: We object to that, if Your Honor please—what somebody else did.

Mr. Butler: I expect to call Dr. Mann. It merely goes to the order of proof.

Judge Scarritt: That makes it more objectionable.

Mr. Butler: It merely goes to the order of the proof, Judge Scarritt. My understanding is that sometimes matters require a foundation, and conclusions may be given if counsel is in good faith of the opinion that the foundation will be supplied, and I am of that opinion in this case.

Judge Scarritt: It is hearsay testimony, and it is not necessary, because the witness who performed the experiment is here.

Mr. Butler: This witness superintended it, Judge Scarritt.

Judge Searritt: That don't make any difference; it does not give him any personal knowledge, except the conclusions he might have drawn.

Mr. Butler: We will not call for the details.

Q. From your study and observation have you been able to form an opinion as to whether nitrite in bread, such nitrite as would be in bread made from flour bleached by nitrogen peroxide gas—would affect the digestibility of the bread?

A. My observation has been that it does.

455 Q. And how does it affect it, improve or impair the digestibility? A. Impairs it.

Q. The degree of impairment, upon what does that depend? Has the quantity of nitrite any effect upon the degree of impairment?

A. Apparently it has. The greater the amount of nitrite peroxide used in the process of bleaching, the more the effects of impairment seem to be apparent.

Q. What amount of nitrites found in water justifies the condemnation of the water for use as drinking water?

A. Why, that amount varies with different localities. But when you find nitrites the one-thousandth of a part in a million, you would suspect that that water had been contaminated unless you know the source of it.

Q. That would be one part to the billion?

A. One part to the billion. The average of American waters is about three parts to the billion.

Q. Of nitrites? A. Of nitrites.

Q. Per billion. Now, as to the amount of nitrites required to appreciably or observably affect blood pressure, have you made any particular experiments yourself upon members of the human family or lower animals for the purpose of getting at the question of the amount required to appreciably affect blood pressure in the blood vessels?

A. I have made experiments upon rabbits and dogs by the direct injection of varying amounts of nitrite into the circulation, myself, and the smallest amount that I used that gave me a positive lowering of the blood pressure was in the proportion, when the stuff was injected into the blood vessel of the dog, of about one part to two million, eight hundred thousand (2,800,000) parts of the body weight of the dog experimented upon.

Q. That is, comparing the weight of the nitrites with the weight of the dog, the amount just observed is one part of nitrite to 2,800,000 parts of dog. I have expressed that correctly, have I, Dr. Jones?

456 A. You did. Now, in reference to the human being, the smallest dose I experimented with was on a young

man weighing 120 pounds and a half grain of the sodium nitrite caused a fall in his blood pressure—given by mouth—of 12 milligrams; that is, 12 millimeters of mercury, which is a little over half an inch of mercury.

Q. That relates to the instrument that you have for measuring blood pressure?

A. For measuring blood pressure.

Q. That is an appreciable amount, sufficient in range to establish its effect, is it?

A. Yes.

Q. One half a grain of sodium nitrite?

A. Half a grain of sodium nitrite.

Q. About half of an ordinary dose such as you administer in your practice when you administer sodium nitrite, is that correct? A. That is correct.

Q. This was a young man.

A. A young man 28 years of age, weighing 128 pounds; found from observations made always under the same conditions—observing blood pressure for several hours before the experiment began, and several hours afterward.

Q. Then your conclusion from all the observations, is what?

A. That the effect of the nitrites is in direct proportion to the dose administered, and that it has a tendency to upset digestion and lower the blood pressure.

Q. Now, it lowers blood pressure? A. Yes.

Q. What is the effect upon that? I mean, has it a depressing effect, or an elevating, exhilarating or stimulating effect—the lowering of the pressure?

A. I find by observing a great number of persons that there is a normal blood pressure for health just as there is a normal pulse rate in a normal temperature, and conditions that either increase or lower that blood pressure are not conducive to the continuance of good health.

457 Q. Coming back again to your work in the examination of plant life in looking for the presence of nitrites, did you make any examination of clover, or any part of it?

A. Yes, I examined the root of clover and found the surface of the root—that nitrites gave a positive reaction. I cut open some little tubers which are supposed to be the nitrogen-storing portions of the plant, and which give the pea of the clover such valuable fertilizing properties,—I cut these nodules open just as I cut all the other roots free from the outside contaminating nitrite or reacting material, and found that nitrites were not preset in these nodules.

Q. To what do you attribute the positive reaction on the surface of the root?

A. To the action of nitrifying bacteria of the soil and its contents, that is, the organic contents of the soil.

Mr. Butler: I think that is all.

(Whereupon at 4:30 o'clock p. m., an adjournment was taken until ten o'clock a. m., June 7th, 1910.)

458 Kansas City, Missouri, Tuesday, June 7, 1910.

Pursuant to adjournment, court met at nine o'clock a. m., June 7, 1910, and proceeded with the trial of said cause as follows:

The Court: You may proceed with this case.

Mr. Butler: There is one question, Mr. Elliott, I would like to ask Dr. Jones.

Hamilton P. Jones, resuming the stand, was examined further, and testified as follows:

By Mr. Butler:

Q. Dr. Jones, have you made any calculation to determine the relation between the weight of the one-half grain of nitrite of sodium, and the weight of the young man, 128 pounds, to whom you administered it, with the result of changing, and lowering his blood pressure, to the extent that you have described, yesterday?

A. The weight was one part of sodium nitrite to 1,680,000 parts of body weight.

Q. Of that man?

A. Of that man. Approximately.

Q. Yes? That is the relation, in weight, of the medicine, and the weight of that young man, would be as one is to 1,680,000. Am I right? A. Yes.

Cross-Examination

By Mr. Elliott:

Q. Dr. Jones, I will ask you if you ever made any analyses of the electrified air that comes from an Alsop machine.

A. I have not.

459 Q. Then you are not prepared to state the constituent of that medium?

A. Not from personal knowledge, derived from analyses?

Q. And you would not know the extent of dilution of any peroxide of nitrogen that might be in it, with air, would you?

A. No. I should think that would depend upon the manner in which the machine was worked.

Q. Yes, but I say, you wouldn't know it?

A. No. That is right.

Q. Now, have you made any examination, or analysis, of the particular flour that was seized in this case? A. No.

Q. And you don't know whether it contains nitrites, or nitrous acid, or any of these other substances, from your personal investigation? A. No.

Q. Or, the extent that it might contain any of these things?

A. No, sir.

Q. Or, you wouldn't know if it had been injured in any way?

A. I know nothing about the flour, from personal knowledge.

Q. I want to ask you one or two questions about your familiarity with nitrites occurring in potable or drinking water. First, have you made quantitative analyses in this regard?

A. In what regard?

Q. The occurrence of nitrites in drinking water.

A. I have.

Q. Are you prepared to give us, in a general way, the extent to which nitrites occur in drinking water?

A. Nitrites may or may not occur in drinking water, and usually when they occur in amounts exceeding three parts—three thousandths parts to the million, we look upon that water with a great deal of doubt and suspicion.

Mr. Butler: I didn't get the figures, Mr. Elliott?

The Witness: Three thousandths.

By Mr. Butler:

460 Q. Of one part?

A. Yes. It depends, Mr. Elliott, upon the source of the water.

By Mr. Elliott:

Q. I was just going to ask you that. You stated yesterday that, where you found nitrites in water—see if I correctly state you—if you didn't know the source of the water, might lead you to condemn the water? A. That is true.

Q. Yes, sir. Now, suppose you did know the source of the water, and you found no contamination. Would the presence of nitrites in that water lead you to condemn it?

A. No, because all nitrites in water have been rather an index of other sources of nature than those of the nitrites themselves.

Q. And that is the point I wanted to bring out. Isn't it true that, with water analyses, these nitrites are an index of possible contamination? A. Yes, sir.

Q. Now, then, as a matter of fact, hasn't it occurred in your practice, that you have approved or passed as potable water—drinking water, which contained nitrites, where you found there was no contamination?

A. Where I could determine that the source producing the nitrites had been rendered inert, so far as the development of pathogenic germs was concerned, I have passed that kind of water, but, with the proviso or suggestion, always, that it be boiled, because you can't be certain in those regards.

Q. Now, with respect to your analysis of these vegetables. I think you testified that you have found vegetables giving a nitrite reaction, in certain cases.

A. I did not testify that I had found vegetables giving nitrite reactions, except they were undergoing decomposition.

Q. I said in certain cases. They were vegetables you bought in the open market? A. Yes.

Q. Were they sold as food? A. They were sold as food.

Q. Were they fit for food?

A. Not when they contained nitrites.

461 Q. Well, aside from that. They were not decomposed to such an extent that they would not be fit for food?

A. Well, they would have passed muster, after the portions decomposing had been pared off, and the vegetables properly cleaned and fitted for cooking—that is, in the ordinary sense of the cook looking at the vegetables.

Q. Well, what I am trying to get at—were these vegetables that you bought the ordinary vegetables you would buy in open markets. A. They were bought in open markets.

Q. And I think you have testified they were fit for food? They were not decomposed so they were not fit for food? Now, I think you have stated that you found, in some of these cases, that the exterior of some of these vegetables gave reactions for nitrites—some of them, I mean. A. That is true.

Q. Some others, you got no reaction, I believe. A. No.

Q. Now, I don't recall, but I will ask you—did you, in any case get a reaction from nitrites from the interior of any of these vegetables?

A. Only in the case of a decomposing egg plant.

Q. A decomposing egg plant? A. Egg plant.

Q. That was the only case?

A. That was the only case, from the interior.

Q. Now, did you examine more than one specimen of each of these vegetables you have referred to? A. I did.

Q. Tell us how many—one, two, three, or—

A. (Interrupting) Well, the way in which I purchased these vegetables was this: I simply went to the market and bought fifteen cents of each variety, and each of the articles that I purchased—there were some ten or fifteen potatoes, for instance,—of each kind.

Q. Well, a number in each case?

A. Yes, a number, more than one, and I suppose it would average probably five or six, for each variety of vegetable.

Q. You examined all of each class, for nitrites?

A. Yes.

462 Q. With the results you have testified?

A. As I have testified.

Q. Now is it not within your knowledge that other investigators have reported the presence of nitrites in some of these vegetables, where you didn't find the nitrites?

A. Well, as I explained to the jury, yesterday, there is a difference in the care exercised—

Q. (Interrupting) Yes, you can explain that later. My question is, is it within your knowledge that other investigators have reported the presence of nitrites in some of these instances where you failed to find them?

A. Well, I don't know that of personal knowledge.

Q. Well, it is not within your knowledge?

A. No. It may be so. In that event, I should say that the vegetables experimented upon were decomposed, if they got it from the interior.

Q. Now, these nitrites are easily soluble in water, are they not? A. Yes.

Q. And, take, celery and beets, and kindred vegetables. They are composed very largely of water, are they not?

A. Well, beets more so than celery. I do not remember the exact proportions.

Q. Well, I don't.

A. But a considerable volume of water.

Q. And wouldn't it be reasonable, don't you think, if nitrites were there, that they would get into the inside of the vegetables, so much water being in there?

A. No, that doesn't follow.

Q. You don't think that would be a reasonable thing to occur?

A. Not unless they had invaded by bacteria.

O. Well, let us assume that, then. Wouldn't you have them on the interior?

A. Yes. If the vegetables were undergoing decomposition, of course, Mr. Elliott, I will have to say this, that, if a bad vegetable is soaked in a strong solution of the nitrites, it is probable that, through the processes of osmosis, that eventually you might find nitrites in that vegetable, but that nitrite would be added to the vegetable, and would not be a natural constituent of it.

463 Q. I think that is very probably true. I am not asking you about soaking it in nitrites. Now, I will put this to you. Are you prepared to state that a perfectly fresh, green vegetable, undecomposed, if there is such a thing—just as fresh as you can buy it—in these vegetables that you have named, are

you prepared to state that they may not contain nitrites on the interior?

A. Prepared to state that they would not contain them.

Q. As a basis of your investigation? A. Yes.

Q. But, my question is, are you prepared to state that they may not contain them?

A. If they are healthy and sound, they will not contain them?

Q. That scarcely answers it. May they contain it? That is the point.

A. If they are decomposed, they may.

Q. No, I say, if they are perfectly fresh.

A. They will not.

Q. Well, would you just mind answering that, the way I put that to you? Are you prepared to state that they may not contain them?

A. You mean "may" in the sense that they cannot?

Q. May these fresh vegetables contain nitrites, on the interior?

A. They may not.

Q. And you mean by that, in no case can they contain them?

A. If they are sound?

Q. Yes. A. Fresh?

Q. Yes. A. Normal vegetables?

Q. Yes. A. They will not contain them.

Q. Now, I want to ask you about the soil down in Louisiana. How would that compare, if you know, with the soil in this locality?

A. The soil in Louisiana is very much more fertile than it is in this section, except, perhaps, in some of the bottoms, and the valleys around in this state.

Q. Well, is it a more sandy soil than what we have up here?

A. Well, most of Louisiana—the rich agricultural lands are alluvial deposits, largely what we call river sand.
464 It is a mixture of—they agree that it has been washed down from the great West—and Northwest, drained by the Mississippi.

Q. But the soil is a sandy soil, as compared with the soils of Kansas and Nebraska?

A. No. It varies very much, in localities, in some of them, buckshot clay, and sandy soil, depending. Why it should be clay in some places, and sandy in others, I am not prepared to say, but the soil is unusually rich.

Q. Now, I want to ask you if you will tell us, just briefly, this process by which plants derive nourishment from the soil, and simply as applied to the formation of nitrates and nitrites?

A. Well, in order that you might understand my conception of it,—you realize that man eats meat, cattle, and things of that kind, and he also eats vegetables. However, the cattle

derive their nourishment from vegetables. One of the tissues of vegetable nutrition is a series of salts, known as nitrates. Now, the product of decay of animal and vegetable matter, and the product of decay of the urinary and fecal discharges of man are decomposed by a series of bacteria called saprophytes in the presence of oxygen, usually, and sometimes it may happen without oxygen being present. These saprophytes decompose this organic matter into carbon dioxide, ammonia, nitrites, finally into nitrates, so that you have the complete cycle, on the upper part of the world—might say, the things that we see—the grass, and the cattle, and the human beings; on the other side these organic or inorganic substances, going under the under cycle, go back to nitrates, the food which is necessary for the vegetable to build up the albuminous parts, which we all require for food.

Q. Well, what I mean is, how do the plants get these nitrites? How do they get them? What is the process?

A. Well, that process is largely assisted by bacteria. As a matter of fact, the stomach and the intestines of an animal is really outside of his body. You have an opening here, and other openings, but it is a straight through-and-through pipe.

So that, for all practical purposes, you may state—I
465 may accept as true, that a man's stomach and intestinal tract is really outside of his body.

Q. Doctor, I don't want to interrupt you—

A. (interrupting) Wait just one moment. I am getting to my point.

Q. Just explain it, won't you?

A. The root of a plant is covered with a membrane, and it secretes juices, which act very much as the digestive juices within your stomach, do, upon the soil, and the products produced in that soil, by fertilization, and the action upon fertilizer and other constituents of the soil, brought about by bacteria.

Q. Well, what happens, then? What is the action on those nitrites?

A. The nitrites are taken up, as nitrites, into the plant, and built up into the amido compounds. They are necessary in the building up of the proteins of the body.

Q. Well, you say these bacteria, and these ferments you have referred to, do not act to reduce these nitrates to nitrites?

A. They may, in certain instances, reduce them to nitrites. I don't know that the roots do, but the bacteria may.

Q. Well, do I understand you to say the plants do not feed on nitrites? A. They do not feed on nitrates.

Q. They do not [deed] on nitrites?

A. Nitrites are poisonous for animals and vegetable plants.

Q. All right. They feed on nitrates? A. Nitrates.

Q. And all vegetables, to a greater or less extent, contain these nitrates? Is that the fact?

A. Yes, sir, with some modification of it. It may not always remain that way.

Q. Now, you testified that you found some nitrites in a ham, I believe? A. Yes, sir.

Q. What was that—a smoked ham, or what kind of a ham it was? A. It was a hog ham.

Q. I mean, was it a cured ham? A. Yes, a cured ham.

Q. Did you make a quantitative examination for nitrites? A. No.

466 Q. You do not know how much was there, but you just found the nitrites were there? A. Present.

Q. Now, as to the human saliva. Have you determined, in those eighty or more tests you referred to, where you found the nitrites in all cases, did you make any tests, there, for the amount? A. Yes, I made several determinations.

Q. Now, give us the range—maximum and minimum.

A. In the same individual?

Q. No, throughout your whole experiments. What was the greatest amount you found, and what was the smallest amount, so we can get the range?

A. I tested the saliva of a man who had “made a night of it.”

Q. Had what?

A. Had “made a night of it.” A night of it.

Q. Made a night— A. (interrupting) Of it.

Q. Oh, yes. I don’t know what that is.

The Court: Been on a “tear.”

Mr. Elliott: Yes. I don’t know anything about that, Your Honor.

A. (continuing) He gave the highest range of nitrites that I found. That was eleven parts to the million, in the morning when I first saw him. I kept that man under observation for several—fourteen hours, testing his saliva from time to time and, after he had brushed his teeth, and gotten straightened up, his nitrite content fell down to something like one-tenth of a part per million, so that his average for the twenty-four hours, I took it as roughly being about a quarter to two-thirds—that is, a three-eighths of a part, per million, for the total amount of saliva excreted by him, or secreted by him, during the day, which I judged to be about three pints.

By Mr. Butler:

Q. That is, for twenty-four hours’ observation?

A. Yes. About fourteen hours’ observation.

467 By Mr. Elliott:

Q. Now, take the highest in normal cases. Some person, who hasn't been out on a tear—average individual. What was the highest amount you found?

A. The average single tests that I made would be about one-quarter of a part per million.

Q. One-fourth of a part per million?

A. Per million. And many of them gave the merest trace, so much so that you must just call it a trace. Just simply gave a little trace.

Q. All contained some, however? A. Some.

Q. Now, you have stated that these nitrites in the mouth are formed by decomposition products in the mouth, I believe. A. Yes.

Q. Well, isn't that just another way of saying there are bacteria in the mouth?

A. Well, there are products of bacterial action. Naturally you wouldn't have them, without bacteria, unless you had eaten them, or got them in flour or bleached flour.

Q. I say, bacteria are always in the mouth? A. Always.

Q. Now, you testified some of these juices that form saliva, which you referred to coming out of these glands, into the mouth, and you said in those, in seven cases, you didn't find any nitrites? A. That is true.

Q. Now, did you test that for nitrates—nitrates?

A. I did not.

Q. And if there had been any nitrates in those juices coming into the mouth, the bacteria in the mouth would have reduced them to nitrites, would they not?

A. Yes, but I don't think that is the way the nitrites in the mouth are formed.

Q. That doesn't answer it.

Mr. Butler: I didn't hear the answer.

Mr. Elliott: The answer was that nitrites were not formed in the mouth in that way.

468 Q. But my question was, if the nitrite was in the bacteria in the mouth they would reduce the nitrates to nitrites, and I understood you to say they did.

A. If they are present.

Q. Yes.

A. I didn't test for that. I don't know that they are present in the body.

Q. Now, isn't it a fact that no matter how these nitrites in the saliva are formed, the fact is they are there, and we are constantly swallowing them, and cannot avoid swallowing them. Isn't that true? A. That is true.

Q. Is fecal matter, or the feces you referred to—is that decomposed organic matter?

A. [Way], it is changing, and in a measure decomposed, but not by the particular variety that produce nitrites.

Q. You would have expected to find nitrites in them, wouldn't you? A. No, sir.

Q. If they are the products of decomposition?

A. Don't have nitrites, formed except in the presence—by bacteria in the presence of oxygen.

Q. Well, there are bacteria in the intestinal tract, are there not?

A. Yes, sir, lots of them.

Q. And you say you wouldn't expect to find bacteria in the feces—I mean nitrites?

A. No, sir, not till it decomposed, outside.

Q. And you didn't find them? A. No, sir.

Q. Now, you didn't find them in the urine, I understand.

A. No, sir.

Q. How many analyses did you make in that regard?

A. May I refer to my record?

Q. Yes. A. I think twenty.

Q. Was that on different individuals?

A. Different individuals. I may say that, on the ten cases of feces that I examined, I also examined the urine, of those individuals. The others, where they overlapped, why,
469 of course, the same individuals were not used.

Q. That is, in ten cases you examined the feces and the urine for nitrites, and there were ten other cases where you examined the urine only? Is that correct?

A. That is, in the ten other cases, I may say that in all these cases I examined the saliva, and found nitrites present in the saliva, of course.

Q. Now, is it within your knowledge that other investigators state that nitrites are in the urine, that they have found them there?

A. I have read that they found nitrites in the urine, after its administration.

Q. No, I didn't ask about any administration, Doctor. I meant normal.

A. Normal? No, sir, I have never heard that statement.

Q. You have never heard that?

A. No, sir, I wouldn't believe it if I did.

Q. Sir?

A. I say, I would not believe it if I did hear it.

Q. Well, without the administration of nitrites, do you know any authority who has simply made an examination of the urine, and stated he has found nitrites in it?

A. No, sir.

Q. Never saw such a statement? A. No, sir.

Q. What becomes of these nitrites that are swallowed in the saliva, if they are not passed out through either of these sources?

A. They are probably oxidized to nitrate.

Q. Now, I want you to tell me what experience you had with testing for nitrites, or testing the effect of nitrites in a human being, other than the injection of this half grain you referred to yesterday.

A. That half grain was not injected. It was administered by mouth.

Q. Oh, I beg your pardon. I thought you said—where you got the blood pressure.

A. On the young man?

Q. Yes. A. It was taken by the mouth.

Q. Well, I have got my notes mixed. Well, aside from that, what other tests have you made, with nitrites, to get the effect on the human economy?

470 A. I have administered, in the course of my practice, nitrites in various forms, and in varying doses, to accomplish a certain, definite purpose, which was to reduce the blood pressure, when I thought that the blood pressure was endangering the life of the man, being high—too high.

Q. Is that what you testified to yesterday, when you said you had given a grain of nitrite, three or four times a day, for a period from eight days to two weeks? A. Yes.

Q. Now, aside from the administration of it as medicine, for the purpose you have indicated, and the administration of this half grain to a young man, what else have you done?

A. You mean in a pharmacologic study?

Q. To note the effect upon the human economy.

A. Well, I was assistant to the professor of chemistry in the Medical Department of Tulane University, which used to be part of my duty, to submit animals and persons to the influences of various gases.

Q. Human beings, I said. Human beings.

A. Well, now, just in the ordinary practice of my profession, I have administered nitrite, and I have made it my duty to go into the pharmacology laboratory of the Tulane University, and study its effect upon animals and to study its effect upon human beings, by means of the sphygmograph. In my own practice, how many times I have administered it, I don't know.

Q. But your experience has been, as I understand it, the giving of sodium nitrite or nitrite in some form, for a certain effect, medicinally, and then you have administered this half grain to this young man?

A. Yes. I would like to say in explanation, that it has been my custom, for a number of years, to study the blood pressure of my patients, and it is one of the routine duties of my trained nurses, to take the blood pressure in these various diseases, just as they would take the temperature, every three or four hours, and record it, so that the express experiment recorded here is simply to indicate the effect of the nitrite upon a normal individual.

Q. Now, have you ever dealt with unweighable amounts of nitrites, to observe any effect from their use?

571 A. No.

Q. You think it possible that a person could observe any effect from the use of an unweighable amount of a nitrite?

A. Why, let me get that question? What do you mean by an unweighable amount? How much is that?

Q. So small that you can't weigh it. I don't know.

A. It would be an amount, wouldn't it—an unweighable amount would be an amount?

Q. Well, I will let you answer that.

Mr. Butler: Well, I think, if the Court please, he should state some definite amount.

Mr. Scarritt: If he doesn't know what an unweighable amount is, he might say so.

Mr. Butler: He has asked Mr. Elliott what he intended by the question. I am sure Mr. Elliott would not intend to conceal any weapons in his question.

A. I will answer it. There is no unweighable amount.

By Mr. Elliott:

Q. There is no such thing? A. No.

Q. You think there are any scales, sufficiently delicate to measure an amount of nitrites in the proportion of 1.8 per million, as they might be contained, we will say, in a loaf of bread? A. Well, I don't know about the delicacy of scales, to that extent.

Q. Well you are familiar with apparatus that you use in laboratories, and so on, are you not?

A. Yes. I have no such scale in my laboratory.

Q. Well, do you know of any such scale? A. No.

Q. In your judgment would it be possible to weigh such an amount. A. My experience has been—

Q. (Interrupting) Now, will you just kindly answer that question. In your judgment would it be possible to weigh such an amount?

A. I think it would be possible, with the properly perfected machinery.

Q. Well, if there is no such machinery, of course, theoretically, we can say it could be made, but if there is none, with our present advance in science,—on that basis, I say, would it be possible to weigh the amount that would be present in a loaf of bread? A. Yes.

Q. You think it would be possible? A. Yes.

Q. Well I think we ought to know how.

A. Well, give me a basis for computation of the nitrite in the bread—the loaf of bread—and I will give you the weight of that amount, and you will see that it will be a ponderable amount, can be weighed on an ordinary scale.

Q. Well, I think we are in accord, Doctor. I think we simply misunderstood each other. I mean, with such instruments as are known to science, is it possible to weigh an amount of those nitrite reacting materials which might be present in a loaf of bread, made from a flour containing 1.8 parts per million? A. Unquestionably.

Q. You say unquestionably it is?

A. You can weigh it, if you can get it together in the form in which you expressed it, then you can weigh it.

Q. If you can get it together? A. Yes.

Q. Well, now, then, of course, it leads to that question—naturally, can you get it together?

A. No, I don't think you can.

Q. Then, that means you can't weigh it, doesn't it?

A. You reason by analogy, and you use methods that have been established by long practice, to accomplish these things.

Q. No, I am not reasoning at all. I am simply taking your answers. You say you can weigh it, if you can get it together, but you say you can't get it together. Therefore, it means that you can't weigh it?

A. No, it does not follow that you can't weigh it. If you could get it together you can weigh it.

473 Q. Well, on what scale, and on what instrument, would you say you could weigh the amount of nitrites that would be present in a loaf of bread made from this flour—made from the flour in this seizure, containing 1.8 parts per million of these nitrites?

A. You could weigh it on ordinary laboratory scales.

Q. Do you know the least amount the finest scale weighs—laboratory scale? A. No.

Q. I believe that is known. If you don't know it, we can get it.

A. I have a scale that weighs one ten-thousandth of a gramme.

Q. One ten-thousandth of a gramme?

A. That would be approximately about one fifteen-hundredth of a grain, roughly calculated.

Q. One fifteen-hundredth of a grain?

A. I don't say that is correct, but there are fifteen grains to the—

Q. (interrupting) Now, you personally, never observed the effect of nitrite in less, as I understand it, than a half grain dose.

A. I have given less than that, and observed its effect. On this young man, that was the minimum amount that I got—

Q. (interrupting) Yes, but I say, you haven't observed the effect on a human being of the administration of less than a half grain dose? A. I have.

Q. You say you have? A. Yes, sir, I have.

Q. Well, what were these effects? You mean where you have given it to reduce blood pressure, as you have testified?

A. Yes.

Q. And have given it in less than half-grain doses?

A. Yes.

Q. What was the smallest dose you ever gave it in?

A. The smallest dose I ever gave it in was, a quarter of a grain.

Q. Now, have you ever observed the administration and the effect of less than one-quarter of a grain? A. No.

Q. Then, your statement which you made yesterday, as to what effect the administration of these minute amounts
474 nitrites was, simply based on your knowledge of the action of a larger amount, was it not?

A. On varying doses, of amounts larger than a quarter of a grain, and I noticed—

Q. (interrupting) Well, from a quarter of a grain up.

A. From a quarter of a grain up?

Q. Yes.

A. I noticed a gradual increased effect, as the dose was increased, and correspondingly, a diminished effect as the dose was diminished.

Q. Yes, down to a quarter of a grain? Beyond that, you don't know anything? A. No, sir.

Q. From a practical observation? A. No, sir.

Q. Now, as you haven't examined or analyzed the gas of this Alsop machine, it isn't within your personal knowledge that that gas is in sufficient concentration to make any definite alliance or combination with anything in the flour, is it?

A. Let me have that question?

Q. Read it.

(Question read by the reporter)

A. It isn't within my personal knowledge, to know anything about the gas produced by the Alsop machine, as being analyzed directly from the machine by me.

Q. You have acted on the assumption that these things are here, and as it has been told you, I suppose.

A. It is set out in the patent, that it is a bleaching material, NO₂. NO₂ will act on materials in the flour, just in proportion to its amount.

Q. But, that is theory, isn't it? A. No.

Q. What have you done to entitle you to say that?

A. I haven't done very much, personally. Not enough to entitle me to say that.

Q. Well, that is what I want.

A. I have made a few analyses, which lead me to that conclusion.

Q. For instance, did you take some of this air, as it is treated by the electric arc, in the Alsop machine, and
475 as it passes into contact with the flour, and you found it makes that flour white, and then you took some of that concentrated peroxide of nitrogen that was in that jar, there, the other day, and give enough of it to the flour to turn it yellow, or whatever color it may be turned to—dark color, that shows your theory isn't true, doesn't it?

A. What theory?

Q. That the effect is in proportion to the amount.

A. Why, of course, it shows it is true.

Q. In one case, you whiten the flour, and in the other case, you darken the flour, don't you? A. Yes, but you—

Q. (interrupting) That was only an illustration.

A. That doesn't disprove my theory, at all.

Q. You say it doesn't?

A. You have a law that is known as the conservation of energy. You can't destroy anything.

Q. But this is theory? You have stated that you don't know the fact that you have testified to. It is just your theory, that that is so? In other words, I think you said in your testimony it was reasonable to suppose these results?

A. You are compelled to accept that. A thing having an effect in one degree, in less degree will have a correspondingly less effect. That is a law which we cannot avoid. It is not a matter of theory. It is a fact.

Q. Well, isn't it within your knowledge, in the art of chemistry, that certain things, in certain concentrations, will not produce any effect, at all, and you get them in greater concentrations, and they will produce effects?

A. That is occasionally true.

Q. That is perfectly true, isn't it.

A. When combined with other things.

Q. Let me give you an illustration. Take dilute nitric acid, and add it to benzine. Do you know if that will produce any compound, at all? A. No, I do not.

476 Q. Well, I am told it won't produce any compound, and you take a higher concentration of nitric acid, and it will produce a certain compound, and you take a still higher concentration, and it will produce still another compound. Those things are well known in chemistry, at any rate, whether you know that specific illustration or not, is it not?

A. In chemistry we have—I suppose he is trying to drag out the law of mass actions. Is that it?

Q. Maybe so. You can bring it out.

A. It is a fact that if we have, for instance, some hydrochloric acid, which is a very strong acid, and some acetic acid, in the presence of some sodium, that, in certain strengths, weak acetic acid will not affect the sodium chloride solution, but if you continue to add more acetic acid, eventually you will have some sodium acetate, or some sodium chlorite formed, but that is a thing that is dependent upon the electrical charge of each of the component parts composing the thing.

Q. Yes? Now, suppose a fellow had started at the other end of that, where he got the reaction, and he had reasoned that, diluting that thing down to any amount, he would get the same reaction, he would have been wrong, wouldn't he?

A. He would not have been wrong, in the case of nitrogen peroxide.

Q. No,—your illustration. That illustration you just gave. He started out with the concentrated, and reasoned that he would go down to the lowest concentration, and would still get that reaction, he would have been wrong, wouldn't he?

A. It is a law that no one can gainsay, in chemistry, that you must know what you are going to produce, before you can write your formula.

Q. Yes, sir. Now, then, answer my question.

A. So, when you speculate that way, you are at sea. You don't know what you are going to get.

477 Q. All right. I quite agree with you. Now, take your illustration, there. A man that had started with the higher concentration, and reasoning by analogy, he would say that, down to a lower concentration he would have the same result, but in less degree, he would have been wrong, wouldn't he?

A. I would not know, unless I knew what I was going to get.

Q. But you have just stated, in the lower concentration you did not get the reaction, did you?

A. When he got in his lower concentration, he would get his hydrochloric compound.

Q. But you don't get the reaction you get with the higher concentration, do you?

A. Just make yourself clear. I don't understand.

Q. Well, you know the illustration you gave? A. Yes.

Q. To illustrate the law of mass action?

A. Yes. You start with a higher concentration of hydrochloric acid. You would work down the other way, I presume.

Q. Yes.

A. You want to reverse the process, and perhaps it would have a little bit of acetic acid, and a lot of hydrochloric acid, is that it?

Q. Yes. Now, will you get the same? A. No.

Q. Then, you would not? In other words, in chemistry, you can't reason, always, by analogy, can you?

A. No, but you can go by experience.

Q. But you haven't had any experience with these nitrites, in less than the amount you have named—that is, a quarter of a grain,—have you?

A. Yes. On a human being, you mean?

Q. Yes, sir.

A. No, not on a human being, but I have on an animal.

Q. All right. You may give that afterwards. I am just asking you about a human being. Now, let us take this illustration. I think he had it yesterday. It is well known that the administration of a certain amount of nicotine will produce death, isn't it—into the human being, I mean?

478 A. Given in the right way, yes.

Q. Yes. And do you say that the person smoking a cigar is killing himself? A. My idea about nicotine—

Mr. Scarritt (interrupting): Just answer the question.

Mr. Elliott: Just answer the question.

Mr. Scarritt: Just answer that.

Mr. Butler: Well, just wait a minute. I don't think, in an examination of this kind, that counsel have the right to select the form of the answer.

The Court: No.

Mr. Butler: I think the witness, especially upon scientific matters, ought to be—

The Court (interrupting): Oh, it involves another thing, whether he is killing himself instantaneously, or by degrees, and all that sort of thing. So on, though. Let us get along.

The Witness: Shall I answer the question, Judge?

The Court: Yes.

A. (Continuing) When a man smokes a cigar, he gets presumable a certain amount of nicotine, which he must take care of. That requires energy. That means that so much has been necessary to produce the energy, and he hurts himself, just in so far as he has supply something to overcome the effect of the nicotine taken.

By Mr. Elliott:

Q. Well, that applies to nearly all the processes, does it not? A. It applies to peroxide of nitrogen.

Q. And it applies to eating and drinking, does it not.

A. Eating and drinking are different things from smoking.

Q. Yes, sir. But the question is, if a certain amount of nitrites will poison a man, you think the amount of nitrites a man would get from smoking a cigar will poison him, to any extent?

A. To the extent of the amount of nitrites produced by that cigar, absorbed by him, and combined
479 with his blood.

Q. This produces, you say, the same poisonous action that the larger amounts produce?

A. In relative proportion.

Q. In relative proportion?

A. The same amount. What I mean, Mr. Elliott,—we are speaking in large numbers. A dollar is a dollar, whether it is one of Mr. Rockefeller's billion, or whether it is my one or two, and a molecule of nitrogen peroxide, has its same intrinsic capacity for work, no matter whether it is in large amounts, or a small amount.

Q. I don't think I asked you any such question, Doctor.

A. No. I wanted you to understand how I felt about it.

Q. Now, as a matter of fact, that isn't correct, is it? Can you say that a molecule of nitrogen peroxide can have the same effect as a ponderable amount, in any reaction?

A. A molecule of nitrogen peroxide is capable of doing a certain, definite amount of chemical work. Two chemicals would do twice that much, three would do three times that much, and so on.

Q. Then, the law of mass action, and those things, are rather thrown aside, in that statement, are they not?

A. Well, you do not have the mass action. You have, there, a direct chemical combination. Mass action is a thing that does not happen in this instance.

Q. All right. Now, I understood you to say this flour contains nitrites. Now, on what basis did you make that statement? A. Which flour, Mr. Elliott?

Q. Flour bleached by the Alsop process?

A. The Alsop process?

Q. Or did you say that? Perhaps I am wrong.

A. No, I don't say that. Why, I have no personal knowledge that it does contain nitrites, but it has been testified that it did, contain certain amounts.

Q. All right. I just wanted to bring out your statement in respect to nitrites contained in flour, bleached with
480 nitrogen peroxide, and you say all you know about that is what has been told you?

A. In this particular flour.

Q. In other words, you haven't recovered any nitrites, as such, or nitrates, as such, or nitrous acid, as such, or nitric acid, as such, or peroxide of nitrogen, as such, from any flour?

A. No, but I—

Q. (interrupting) That is enough.

A. (continuing)—examined, in my laboratory, flours not bleached by myself, but said to be bleached in varying degrees of strength. The higher the grade of flour, the greater number—

Q. (interrupting) But, Doctor, I don't think you ought to put that on me. You have answered my question. I said, you have never found these things in flour?

A. I have found nitric acid, as a result, according to the amount of bleaching,—

Q. (interrupting) I didn't ask you anything about that.

A. Yes, you did ask me about nitric acid.

Q. Well, is your answer wrong? You said you had not.

A. I have found nitric acid in it.

Q. Now, read that question and answer.

(Question read as follows: Question. In other words, you haven't recovered any nitrites, as such, or nitrates, as such, or nitrous acid, as such, or nitric acid, as such, or peroxide of nitrogen, as such, from any flour?)

A. That is true.

Q. Now, you testified as to some experiments with bread, or some investigations, relative to bread, I believe.

A. Yes, sir.

Q. And I will ask you where the flour was obtained from which that bread was made.

A. The flour was obtained in the market, at New Orleans.

Q. How was it bleached?

A. I don't know how much it was bleached.

Q. Did you bleach it? A. I didn't bleach it.

Q. Who brought it to you, or—

A. (interrupting) I bought it, as a bleached flour, from a commercial—

481 Q. (interrupting) Oh, you bought it, as already bleached?

A. Already bleached. Commercially bleached flour. I don't know how it was bleached.

Q. Now, how many experiments did you make from that bread?

A. I had a loaf made, the ordinary baker's way, and I had biscuits made, with yeast.

Q. You mean, just one loaf, and these biscuits?

A. Yes, sir.

Q. That is all? A. That is all.

Q. Now, how much of this nitrite reacting material did you find in the flour? A. 2.7 per million.

Q. 2.7? Now, did you estimate the amount in the bread, after it was baked? A. I did not.

Q. You did not? You don't know whether the bread contained any or not?

A. I tested it for nitrite reacting material, and found that.

Q. But you didn't test it quantitatively?

A. Not quantitatively, but it seemed to be less, in looking at the reaction.

Q. Now, what did you do with that bread? What tests did you make with it?

A. I bought from this firm two kinds of flour—

Q. (interrupting) No, no. You have already got the bread.

A. Yes, but you asked me what tests I made.

Q. Go ahead.

A. One was a flour sold as a bleached flour, and, on testing, gave nitrite reaction. The other was sold as an unbleached flour, flour manufactured in New Orleans,—not from the same kind of wheat, but, in this case, a Durum flour—but unbleached. It was tested for nitrites, and they were not found, and bread and biscuits were made from the two samples of flour, under equal conditions, and then tested, and the nitrite reacting flour, gave nitrite reactions in the bread, and in the biscuits, whereas, neither the bread nor the biscuits, in the unbleached flour gave the reaction, both being baked in the same kind of an oven, which was a gas oven, with an open gas flame.

Q. Now, may I ask you, was the bread from the bleached flour made from a soft, winter wheat flour?

482 A. I have no idea what the quality of the wheat was.

Q. At any rate, it was not a Durum flour?

A. I don't think it was a Durum, at least it came from somewhere out here in this section of the country, and the other flour was made in New Orleans.

Q. You made your comparative digestion experiments, between the bread made from the bleached flour, in one instance, and the bread made from this unbleached Durum flour, in the other. Is that it?

A. I supervised the work of Dr. Mann, who has the necessary data pertaining to that flour. I don't remember what flours he used.

Q. Well, I thought you were just giving us the details of it.

A. No, this is a different experiment. You spoke about making and then you are coming to digestion experiments now.

Q. What did you do? Just make the baking?

A. The baking, and the tests for the nitrites, in the original flour, and the bread.

Q. Well, you haven't given any testimony about the baking results, have you? I don't recall such.

Mr. Butler: Yes, he said it was in the bread, indirectly, and, then, as respects the digestion tests, he collaborated with Dr. Mann, and hasn't the details. You excluded that on me. I withdrew the question.

Mr. Elliott: All right.

Q. But it is in your knowledge, that this flour that was used by Dr. Mann in his digestion tests was, in one case, made from flour, not Durum, and the other was?

A. This bread was not put in any digestion tests at all. This was a distinct experiment.

Q. Was anything done with that bread, except bake it, and test it? A. Bake it and test it.

Q. For nitrites? A. Yes.

Q. Well, I beg your pardon. I got the wrong idea. You don't know what bread, if any, Dr. Mann used? A. No.

Q. Now, you have testified, I believe, as to the poisonous effects of peroxide of nitrogen gas, have you not?

A. Yes.

483 Q. I want to ask you if the fact that nitrogen peroxide gas is poisonous, has any relation, whatever, to the character of this nitrite reacting material that may be in the flour. A. Yes.

Q. You think it has? A. I think it has.

Q. Does it necessarily follow,—I mean, that, because nitrogen peroxide gas is poisonous, that some product made from it is poisonous? A. No, it doesn't necessarily follow.

Q. Does not necessarily follow?

A. That all products are necessarily poisonous. Some of them may be, and some may not be.

Q. For instance, carbonic acid gas is a poisonous gas, isn't it? A. Yes.

Q. And yet, the carbonates, and bicarbonates are not poisonous, are they? A. No.

Q. And chlorine and hydrochloric acid gas are poisonous, are they not when inhaled? A. Yes.

Q. And yet the chlorides, and common salt are not poisons, are they? A. Not ordinarily so.

Q. So, you understand my question? It doesn't follow that, because nitrogen peroxide is poisonous, that anything in the flour, as a result of the treatment by that is poisonous?

A. It doesn't necessarily follow.

Q. Now, this young man, to whom you administered this half grain of nitrite. Was that sodium nitrite?

A. Sodium nitrite. That would be one part of nitrogen, as calculated—nitrogen of the nitrite reacting material, one part, to a little over eight million parts of his body weight, as calculated by Dr. Winton.

Q. And I understood it was one part.

By Mr. Butler:

Q. That is, if it is calculated as nitrogen, it will be one part to over eight million?

A. Yes. As nitrite of sodium, one to 1,680,000.

484 By Mr. Elliott:

Q. It would not be in that proportion, though, in proportion to his blood content?—How much blood is contained in an ordinary human being, of one hundred fifty pounds, say?

A. I don't remember exactly. I think about twelve or thirteen pounds.

Q. It would not be in the proportion of 1,680,000, to the blood, would it?

A. No, but the more you confine the action to the nitrites, the worse it is.

Q. Now, tell me what you did to determine this pressure test. Just tell us, in simple language, how you proceeded.

A. On the human being?

Q. Yes, this case.

A. We have a method of taking the blood pressure. We put a rubber bag of sufficient width, around the arm and that has a strap to go about it. From this bag is a tube leading to a column of mercury. Now, you put your hand on the man's pulse, and then you pump air into this bag, until you lose the pulse. Now, it is reasonable to suppose that the pressure that is sufficient to cut off the blood flow from the arteries, to stop the pulse beat, is equal to the pressure exerted by the heart behind it, so that the pressure in the bag balances the pressure produced by the heart, and you make your reading.

Q. And you have a scale up there, I suppose.

A. Have a scale.

Q. Yes, sir. Now, then, go ahead and tell us what you did. You gave him a half grain of nitrite?

A. This young man was observed by me for about five hours, before administering this stuff, and his normal blood pressure

was one hundred twenty millimetres of mercury. Now, about four inches and a half mercury pressure was the work being done by his heart. His blood pressure stayed at, roughly speaking, four inches and a half, for five hours, before I made the experiment. Then, I gave him the half grain of nitrite of sodium, and took blood pressure readings every five minutes after that. In about five minutes his blood pressure began to fall within about three minutes; five minutes, it gone down a good deal, and, in about eight minutes, it had reached the lowest, going down to practically four inches and then, after that, for the next eighty or ninety minutes, the blood pressure gradually went up, until about at the end of an hour and three-quarters after this half grain dose, it had returned to the normal. The half-grain dose giving him a fall in blood pressure equivalent to about ten per cent of his total heart power.

Q. And how long was it before it returned to normal?

A. About an hour and forty-five minutes.

Q. An hour and forty-five minutes from the administration of a one-fourth grain? A. A half grain.

Q. A half-grain dose of nitrite? Now, had that young man eaten anything, in those five hours?

A. That young man had had his breakfast at seven o'clock. The conditions were exactly the same, on the day that he got the grain, and the half-grain doses.

Q. Yes? I asked if he had eaten anything.

A. He had had his breakfast.

Q. Within the five hours, Doctor?

A. No, not within the five hours.

Q. Now, have you ever observed the difference in blood pressure before and after eating? A. Yes.

Q. Does it vary?

A. Yes, it varies.

Q. Have you ever observed the effect of increasing or decreasing the blood pressure, from smoking?

A. Yes, but this young man was an inveterate smoker, and smoked all the time. I didn't know anything about that.

Q. All right. I am not speaking about that. Did you ever observe an increase or decrease in blood pressure from smoking?

A. Yes, smoking increases it.

Q. And how about coffee.

A. Coffee increases it.

Q. And how about whisky?

A. Whisky increases it for a while. Afterwards, depresses it.

486 Q. But a man after eating an ordinary meal, will have his blood pressure increased? A. Increases it.

Q. Did you tell this young man of any possible harmful effects from this administration of this half grain of nitrite?

A. Yes.

Q. What effect do you think that had on his mentality?

A. I had the machine on his arm when I told him that this might hurt him. It did not effect his blood pressure, at all.

Q. Well, mentality and blood pressure aren't the same thing. What effect do you think the statement that you were going to do harm to a person, would have on their mentality?

A. Well, it would depend very largely upon whether they were afraid of me, or were going to kill me for doing harm to them. Varying circumstances.

Q. What did you tell this young man?

A. I told him I was going to give him the concentrated form of the gas that we had been operating on in the laboratory. He knew pretty well what it was, and he said that he knew that, while I might make him sick in an experiment, that he did not believe I would kill him; that he would leave himself to me—that he would run the risk.

Q. Made himself a martyr to science. A. No.

Q. Offered himself, I mean?

A. No, he didn't. I paid him for it.

Q. Well, now, Doctor, seriously do you think that those conditions would have some effect on the mentality of a man?

A. I waited five hours before the experiment began. I tried to eliminate those things. I tried to make it a fair experiment.

Q. But, I asked you what your opinion would be as to whether it would have some effect upon the mentality of a man. A. Which?

A. The conditions under which you performed that experiment.

A. It would depend entirely upon the individual.

The Court: We will take a few minutes recess, gentlemen.

487 (Recess taken as ordered.)

The Court: Dr. Jones, take the stand, please.

Mr. Elliott: I have completed the cross-examination, if Your Honor please.

The Court: Any redirect examination, Mr. Butler?

Mr. Butler: Yes.

Dr. Jones, resuming the witness stand, was examined, and testified as follows:

By Mr. Butler:

Q. Dr. Jones, in your cross-examination, something was said about the effect upon blood pressure of tobacco and food and whisky, and so forth. What are the things which generally will increase blood pressure?

A. Why fear, anger, meals.

By the Court:

Q. What? A. Meals. Exercise.

Mr. Smith: Meals?

Mr. Butler: Yes—food.

A. (continuing) Stimulants of any kind, tobacco.

Q. Now, what degree may blood pressure be depressed before it is apparent, or objectionable? In other words, I wanted to get the range of blood pressure.

A. Well, normal blood pressure may run in practical limits, say, between one hundred fourteen millimetres, and, say one hundred forty. When it gets beyond that point, we begin to suspect that there is some arterial or kidney case. When it is below that, we know that the vitality of the individual is reduced from some cause or other. Of course, there are exceptions in all these cases, but that is the average.

Q. Now, I understood you to say to Mr. Elliott that, if water contained more than three thousandths of one per cent. nitrites, to a millionth part of water, it was rejected.

A. Yes, without knowing where it came from.

488 Q. That is, three parts to the billion?

A. Three parts to the billion.

Mr. Butler: I think that is all.

Mr. Elliott: That is all.

Witness Excused.

Gustav Mann, called as a witness on behalf of the Government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Gustav Mann? A. Yes, sir.

Q. Now, Doctor, will you speak distinctly. It is very hard to make ones self heard in this room, I have found. Where do you live? A. New Orleans, La.

Q. And your age, and profession, education, experience, etc.?

A. Am 46 years of age. Am at present professor of physiology in the medical department of Tulane university. Am also the head of the biological department of the academical section of the Tulane university. Am a doctor of medicine,

and master of surgery of the Edinburgh university of Scotland, and bachelor of science of the Oxford university of England.

Q. Have you written any works, in the line of your profession?

A. I have published two books, the first dealing with physiological histology, published in 1902. The second book dealing with the chemistry of the body, published in 1906. In addition to this, I have written, altogether, about—roughly speaking,—thirty different papers, one dealing with plant physiology. I was awarded the Dobie Smith gold medal for that. Another, dealing with the chemical changes which the nervous system undergoes, during the time we are awake and working. I was awarded the gold medal of Edinburgh university for my M. D. theses. I am at present working, particularly with the help of my assistants, on processes of digestion, paying particular attention to those products which are absolutely necessary for the maintenance of life.

Q. Have you made some study of the composition of bread made from wheat flour? A. Yes, sir.

Q. And the nutritive value of each of the constituents, or each of the principal constituents of wheat bread and flour?

A. I have.

Q. You may tell what the composition of bread is, and the nutritive value of the constituents?

A. If we don't take into consideration the amount of water which is in flour, we may, roughly, divide up the constituents which are of direct benefit to us as a food, in this way: Suppose there is one per cent of fat: There is, roughly speaking, 10 per cent of protein substance, and 90 per cent of starch, now, having, here, the proportion of one of fat to 10 of protein to 90 of starch. The most valuable constituent of flour and of bread is a protein. If I took all the starch, and if I took all the fat and fed a person on that, they would die very quickly of starvation. What is absolutely essential, is to have the protein, because the protein keeps us alive. The starch and the fat simply produce heat in the body. Now, the protein amounts, roughly speaking, to from 10 per cent to maybe 12 or 12½, but the essential food in the bread and in the flour goes by the name of gliadin or gluten.

Q. Do you use the word "Gluten" and the word "Protein" interchangeable, one as an equivalent of the other, in your testimony?

A. Yes, in certain cases we do. When we speak of gluten, we mean the wheat product. The wheat product is the crude gluten. Then, this crude gluten may be divided into two portions, one which is soluble in alcohol, and one which is not

soluble in 70% alcohol. Now, the portion which is soluble in alcohol is different, chemically from the portion
 490 which is not soluble in alcohol. Now, the one which is soluble in alcohol contains for example, one of the most important constituents, namely, a compound called lysin.

Q. That is in it?

A. In the alcohol soluble. The alcohol-soluble compound, then, doesn't contain this compound which we will call lysin, but it contains very little of another compound which is absolutely essential to life, namely, triptophane. They are the two substances,—lysin and triptophane,—without which no one can live. The triptophane is contained in the alcohol-soluble, you see, and the other constituent is contained in the non-alcohol-soluble stuff.

Q. Are you familiar with the substance known in chemistry as NO₂, or nitrogen peroxide gas? A. I am, sir.

Q. Does that substance, diluted with atmospheric air in it, act upon the constituents of wheat flour, by reason of chemical action, either direct or indirect? A. It does.

Q. I would like to have you explain to the jury, if you can, the effect that it does have upon each of these principal constituents that you have mentioned—the fat, and the starch, and the protein, or gluten?

A. The first substance on which the nitrous acid acts, is the fat. That happens before anything else, I should say, because the affinity of the nitrous acid to the fat, seems to be greater than the nitrous acid for anything else; but as soon as the 1 per cent of fat has been satisfied with the nitrous acid, then we have still an amount for, roughly speaking, 90 per cent of starch and 10 per cent of protein. Now, what I notice is that as soon as the nitrous acid comes into contact with fat, this fat being in the flour, not having been extracted, as I do with gasoline, the flour, is at once bleached—that is, the yellow color disappears. Then, I made some experiments which seem to show that there is a definite change in the chemical nature of the fat, because certain substances which it would normally unite readily, it doesn't unite with such substances—as, Soudan 3 or scarlet R and others. Now, this action on the fat I haven't stated in detail, but I have stated in detail the action on the starch and the action on the
 491 protein, or gluten. Now, what I expected to find, is, that the action of nitrous acid on starch would give me sugar. I expected to find a good deal of sugar, but I didn't get a good deal. I tried different strengths of bleached flour,—1 per million—3 per million—4 per million and up to 4 per million I found no action whatsoever on starch which I

could demonstrate. But, after four per million, and up to 7 per million, I got a very slight action; to a very slight extent the starch was converted into sugar. That means there is nothing there to interfere, from the health point of view, with the flour. The slight digestion which occurs, there, in the starch, is evidenced perhaps, slightly, eventually.

Q. You don't get the effect upon the starch? This bell was ringing and I didn't hear it. Now, just in a word. Upon the oil, I understand you, in acts, first, and the first effect is the bleaching of the coloring matter in the oil?

A. Yes, sir.

Q. Now, on the starch?

A. On the starch, when the nitrous acid acts on the starch in a strength greater than four parts per million, or greater, there is a very, very slight inversion of the starch into sugar. This change is neither—it is too small to do any harm, and it is practically of no value from a nutritive point of view. The change is so enormously slight that I had to take the ordinary tests and dilute them greatly, in order to be able to appreciate this.

Q. This is, as I catch your meaning—if the treatment of the flour by nitrogen peroxide gas, is in excess of four parts to the million? A. Yes.

Q. Four parts of the gas to a million parts of the flour, then there would be only a very slight change in the starch, changing it into sugar? A. Into sugar.

Q. Now, if that continues, as the amount increases will the change also increase?

A. No, sir. The curious thing, I expected it would, of course, but it didn't. The change is so very, very slight, that it may be utterly neglected. I didn't get what I expected, in the sugar, because as soon as we bring, under ordinary
492 conditions, an acid into contact with the sugar, the starch is [as] once converted in the sugar. That is a—well known chemical fact, and I was, therefore, very much surprised when I didn't get it in the flour; and I have, hence, only to state the action of the nitrous acid on the protein, and this action of the nitrous acid on the protein may be divided up into several stages. There is what we may call an initial stage. Now, this initial stage of action on the protein substance gives me a compound which, if I simply look at it, seems to be the same as it was to begin with, but, if I take this gluten which has been acted upon in the initial stage with nitrous acid, get it in my hands, and try to string it out, I find it is short—it doesn't pull out into as long strings as normal gluten does. Now, secondly, in many instances, but not always, it is possible to tell a difference by smell. If I have acted on the flour with nitrous acid, and I haven't waited

more than a month, I can usually, but not always, tell a difference in smell. Now, in addition, here, to the physical changes, there is a distinct chemical change. Suppose I took gluten which has been acted upon by nitrous acid. Suppose I wash that gluten, free. That means that I take a certain amount of flour, and make it into dough, and let this dough raise for about an hour or two hours, then I wash it, wash it as much as I can with my hands, and I put it through a mincing machine—kind of a sausage machine. I get long threads. Wash it again. Make it into a roll and put it back in the sausage machine, and in this way, we get rid of most of the starch—leaves only a little. Now, if I take gluten which has been prepared in this way, or if I take some flour, it is possible to show that there is an increase in the acidity. There is a distinct increase in the acidity of the flour, as soon as any nitrous acid reaches this flour. Now, I thought, at first, washing flour, it would be quite easy to demonstrate this increase in acidity, but I found it was not any too easy. When I first tested the pure gluten, I couldn't demonstrate a distinct increase, so what I had to do

493 was simply this—

Q. (Interrupting) Before that—when you say increased in acidity, I would like a little definition of meaning, as that word is here used, for it has been used in this case in two senses, one relating to mineral acidity, and the other relating to organic acidity. A. Yes.

Q. Now, which do you mean, when you say, upon being treated by nitrous acid, there is an increase in acidity?

A. There is always an increase of mineral acidity.

Q. You mean mineral acidity?

A. No, I mean, just now, the gluten acidity.

Q. Well, is that a mineral acidity?

A. No. That is an organic acidity.

Q. Very good. A. An organic acidity.

Q. But you say there is always—

A. (Interrupting) There is always mineral acidity. That is a simply chemical problem. There is no difficulty about that. If you put nitrous acid into any compound, for that, becoming nitrous acid, you must have mineral acidity, and there is no doubt about that, but we are in doubt, and the thing was, whether the protein which was in the wheat was so acted upon as to show a definite amount of increase in the acidity and I didn't find it easy to demonstrate. If I test in an ordinary way, I won't get any indication of an acidity. What I have to do—suppose this was the gluten. If I wanted to show the acidity, what is absolutely necessary, in the first instance, is, to add some alkali. Then, next, I have to convert my protein compound into a new substance, by the excess of caustic

products. That is an exceedingly difficult chemical problem. Of course, there are certain compounds that are so composite, suppose they are acids, and I add alkali in excess, instead of giving an alkaline reaction, I get a neutral reaction, and we have certain bases—certain alkalies, if I add any acid to them, and I add more acid than should exactly neutralize it, I got, again, a neutral compound, and this is what we call a psuedo-acid, and psuedo-bases. Now, what actually determines, 494 in the test, is, if I add these psuedo-acids and psuedo-bases, by addition of alkalies beyond the needs of that protein compound, I don't know which I have, so I add a certain amount of alkali, say one part to two parts alkali. The, I titrate that backwards, and when I titrate that backwards I get a distinct increase in the acidity. The increase in the acidity of the albumin being equal to about 1-10th of a cubic centimeter of a [—] of hydrochloric acid for one gram of flour. I repeat that: The increase in acidity is equal to a [—] of hydrochloric acid, expressed so, per gram of flour. So, there is no doubt as to there being, after the addition of nitrous acid, [and] distinct increase in the acidity of the protein compound of wheat.

Q. Then, as I understand your testimony, with respect to the effect of this nitrogen peroxide gas upon the gluten, or protein, your points are these: That, at first, the appearance does not seem to be changed much. A. Yes.

Q. But the elasticity of the gluten is lessened, or diminished, as I understand? A. Yes, sir.

Q. And there is a distinct chemical change in the gluten, we will say. A. Yes, sir.

Q. And, further, the mineral acidity is increased by the addition of the nitrous acid? A. Yes, sir.

Q. And, that there is also worked a change,—an increase, as I understand your explanation,—in the organic acidity of the gluten? A. Yes, sir.

Q. Now, any other changes that you have observed, or demonstrated, by the use of this gas, upon gluten of wheat flour?

A. The next change, which is perhaps the most interesting, is, that there is a great deal of difference between ordinary flour which has not been bleached, and flour which has been bleached. As soon as I test the digestibility, I find 495 there is a great deal of difference between the digestibility of flour which has been bleached and flour which has not been bleached. The digestibility is impaired.

Q. The digestibility is impaired, is the further point you have made since my last question? A. I beg pardon?

Q. That the bleaching of flour by this nitrogen peroxide gas, impaired the digestibility of the gluten? A. Yes, sir.

Q. Now, with respect to the quantity, or consideration of the quantity of the nitrogen peroxide gas employed, not to the whole volume of the flour, but to the constituents of the flour, acted upon by the bleaching reagents, can you express to the Court and jury a comparison, what five parts of nitrite nitrogen would be, if measured, not against the whole volume of the flour, but against the portions of the flour which had been acted upon?

A. The question is simply this: Suppose I take 100 parts of flour. My experiments have shown that 90 parts of the flour, composed of starch, are practically not acted upon, at all. That leaves me with 10 per cent which is acted upon. Now, suppose I have 100 parts of flour, and only 10 parts of the flour are acted upon, and 90 parts are not acted upon; it follows that, if I use a certain quantity of gas, and put it into that flour, this gas which I put into the flour concentrates all of its power on that 10 per cent of the gluten,—not on the 90 per cent of the starch, and, therefore, if I say, for example, 5 per million, it isn't really 5 per million, at all. It is 5, about 100,000. That means it is 1 in 20,000. It isn't one in 200,000, but 1 in 20,000, in as much as nitrous acid concentrates all its action on the 10 per cent of protein which is present, and therefore, it is erroneous to speak of, say, 5 per million. It isn't 5 per million, at all. It is 1 in 20,000. That means the action of the nitrous acid is really ten times as strong as is claimed—as is said to be. The nitrous acid is really 10 times stronger, in its effect on the protein—on the gluten of the wheat,—than we are lead to expect, by mere listening to such a statement as “there is 5 per million”.

Mr. Butler: Did Your Honor intend to adjourn about this time:

The Court: Just as you say.

Mr. Butler: I would prefer it, before entering upon another branch of the examination.

Whereupon court stood adjourned to 2 o'clock p. m.

Kansas City, Missouri, June 7, 1910.

Pursuant to adjournment, Court met at 2 o'clock p. m., Tuesday, June 7, 1910, and proceeded with the trial of said cause further as follows:

Gustav Mann, resuming the witness stand, was examined further, and testified as follows:

Direct Examination (Continued)

By Mr. Butler:

Q. Doctor, have you made any studies for the purpose of determining the effect upon digestibility of flour, that results from treatment of the same with nitrogen peroxide gas, mixed with air, and thereby bleaching it? A. I have.

Q. Have you been able to determine whether or not such treatment has any effect upon the digestible, of the flour, or any of the ingredients of the flour?

A. The effect of nitrous acid upon flour is this effect, that it makes the gluten much less digestible, compared to flour which is not bleached.

Q. You said nitrous acid. Now, this Alsop bleaching
497 process employs NO_2 , nitrogen peroxide, and N_2O_4 , being the same thing under different conditions of temperature, I understand.

Mr. Elliott: If your Honor please, I don't think Mr. Butler ought to testify as to what this Alsop process does.

Mr. Butler: That is the proof in this law-suit.

The Court: Oh, Mr. Elliott, I am not much of a chemist, but I assume that statement is something that any Court can judicially notice, isn't it?

Mr. Butler: That is the statement in their patent, in the very words of their patent. I don't understand it is denied.

The Court: Go ahead.

By Mr. Butler:

Q. Upon the introduction of such gas, mixed with air, into the flour, what chemical changes take place, directly, if any? Are there any acids formed?

A. Yes. As soon as the nitrous acid meets with the flour, as we have 10 per cent of water in the flour, we must have the nitrous acid pass into solution—I mean the nitrous acid and the water, together, give me two things; firstly, very dilute solution of nitrous acid; and, secondly, a solution of nitric acid, and, in that, nitrous acid and nitric acid are formed in equal amounts.

Q. What is the character of the substance known as nitric acid?

A. It is a very strong, corrosive acid, an acid which undergoes strong electrolysis. That means it is one of the very strongest acids which we could possibly deal with.

Q. What is the effect of nitric acid, upon organic matter, like the flesh, or a piece of bread, or flour?

A. Everything will depend on the amount of nitric acid, in relation to the amount of protein. If I have a great deal of nitric acid, and the amount of albumen, the whole of albumen becomes changed in such a way as to become an exceedingly poisonous substance.

Q. What would be the effect of pouring nitric acid upon bread?

A. The effect is exactly the same as adding nitrous acid to flour, which contains 10 per cent of water.

Q. What effect would it have upon the color of bread?

A. The color of bread will be changed from white into yellow.

Q. Have you, yourself, done that, since you were on the stand this morning? A. Yes, sir.

Q. Have you brought the bread to court? A. Yes, sir.

Q. (Handing to the witness a plate containing two pieces of bread) Are these the pieces of bread, upon which you poured nitric acid? A. Yes, sir.

The Court: That was the nitric acid?

By Mr. Butler:

Q. That was the ordinary nitric acid, of commerce?

A. It is the ordinary nitric acid I found upstairs in the laboratory.

Q. You may show them to the jury.

(Witness does so.)

Q. Describe this change in color.

A. The change in color—

Q. (Interrupting) Well, wait a moment, until the jury has completed its examination.

A Juror:

Q. Did you have some butter on the bread?

A. No, sir. Ordinary bread. I got two samples of bread, one of them was bleached, and the other was unbleached, and I poured nitric acid on both.

The Court: Just wait a moment. One of those pieces of bread is made out of bleached flour?

The Witness: Yes, sir.

The Court: The other, unbleached?

The Witness: Yes, sir.

A Juror: Which one is bleached?

The Witness: I can't tell you. I'll tell you as soon as I see it, but I can't tell you, otherwise. (Examining the exhibit) Excuse me, please, Judge, because the light is poor, here, and I can't see. (Carries the exhibit to a window.)

A. (Continuing) The bigger slice is the unbleached, and the smaller slice is the bleached.

By Mr. Butler:

Q. This bread you procured in the laboratory of the United States Government, on the floor above this floor, in this building? A. Yes, sir.

Q. Now, describe the change worked in the color, by this nitric acid, poured upon these pieces of bread, and the chemical changes that would result from such an operation, if you know what they are?

A. This reaction which we get, here, with the bread, and with all protein substances, with all gluten, for example, is a reaction we have to teach our students, when they become medical students. It is quite a common reaction, and it is known as the xanthro proteic reaction,—simply a yellow, protein reaction.

Q. That is, a yellow, protein reaction? A. Yes.

Q. The xanthro protein? A. Xanthro protein.

Q. Now, let us pause long enough to fasten that word in mind. That is xanthro—

A. (Interrupting) Xanthro proteic reaction, and it is due to the fact that all compounds in such gluten, which apply to the benzol series, undergo a definite change, so, what is formed in this particular instance, is, firstly, what we call diazo compounds. That means when nitrous acid is brought into contact with benzene rings, the benzene ring becomes changed. If it has attached to it what we call NH_2 hook, an ammonia radical, it becomes changed in such a way as to give rise to diazo compounds. Now, this particular diazo compound reaction is extensively used by manufacturers, of aniline dyes, to produce yellow colors, brown colors and red colors. Now, a subsequent change to this, is, that the nitrous acid, acting upon these very same compounds, gives rise to a substance very closely related to picric acid. Now, as soon as we get to these diazo compounds, we are dealing with a compound which is an exceedingly poisonous substance.

500 Q. This yellow colored substance in the bread, where the nitric acid was poured by you,—is that poisonous?

A. I beg pardon?

Q. The yellow patch in each of these pieces of bread—is that poisonous? A. Very poisonous.

Q. That is the xanthro proteic compound? A. Yes, sir.

Q. Is this nitric acid the same substance as is produced in the flour by nitrogen peroxide, employed by the Alsop process, for bleaching? A. Yes, sir; it is.

Q. And is the chemical action the same, in kind, differing in degree only, as the quantity differs? A. Yes, sir.

Q. Does such treatment affect the digestibility of gluten?

A. If I have once produced an xanthro proteic reaction, all digestibility is made impossible.

Q. When the treatment has been by a medium strong enough to produce the xanthro proteic substance, then it will not digest? Is that it? A. Yes. That is true.

Q. Now, from your studies and experimentations, have you been able to ascertain whether or not the treatment of flour, by nitrogen peroxide gas, will affect the digestibility of gluten of the flour?

A. Yes. Very minute quantities of nitrous acid, when added to the flour, will completely change the digestibility of the flour.

Q. You said nitrous acid. Is that the equivalent of NO_2 ?

A. That is the equivalent of NO_2 .

Q. Because the nitrous acid is the immediate and direct result of the application of the gas to the flour, I take it?

A. Yes, sir.

Q. Now, I would like to get you to describe to the jury, the degree of impairment, resulting from the treatment of flour by nitrogen peroxide gas, diluted with air, taking into account the amount of treatment.

A. Well, what I actually did, I took, first of all, some flour I bought in New Orleans, which is supposed to be a high patent, winter wheat flour, and this goes by the name of "Golden Drop".

501 The Court: Golden Drop?

The Witness: Yes. If you will allow me I will just show you (Referring to chart).

By Mr. Butler:

Q. Do you happen to know where that flour was milled?

A. No, I do not, sir. In the first instance, I took some flour which I bought—

The Court: (Interrupting) Just a moment. Do you gentlemen agree where this Golden Drop flour is manufactured?

Mr. Smith: Never heard of it.

Mr. Butler: Did you ever hear of it?

The Court: No.

Mr. Scarritt: Must be in Nevada, somewhere.

The Court: I don't know that I ever heard of it.

By Mr. Butler:

Q. You don't know whether it was milled in New Orleans, or not?

A. No, sir. It was bought in New Orleans by Doctor Jones, and it has since staid in my laboratory, and it was said by the man who sold it—

Mr. Smith: (Interrupting) Wait a minute. I don't think we ought to come that far.

The Court: He was about telling where it was coming from I don't know.

By Mr. Butler:

Q. It was bought in the market in New Orleans?

A. Bought in the market, in New Orleans, and it was stated to be a high patent, winter wheat.

Q. When you bought it, and when you received the flour, did you ascertain whether or not it contained nitrite reacting material?

A. Yes, sir. Didn't react under the Griess reaction, nor to any other test.

Q. So, you determined that, in the first instance, when
502 you received it, it didn't contain nitrite reacting material?

A. I did.

The Court: You say it did not?

A. No, Judge, didn't contain any.

By Mr. Butler:

Q. Now, what did you do with the flour? You may describe the details of your experiment to determine?

A. I generated nitrous acid, by acting on starch with nitric acid, and this gas was collected, and then I took and measured different quantities, of this nitrous acid, and added it to the flour, and I added it in such proportions as to—if I may just consult my notes?

Q. When you say nitrous acid—

A. (Interrupting) I mean the gas.

Q. Nitrogen peroxide gas?

A. Nitrogen peroxide gas. I used it in 1 per million, $2\frac{1}{2}$ per million, and 5 million.

Q. That is, you treated different quantities of the flour, in different degrees? A. Yes, sir.

Q. And when you say 1 per million, do you mean one part of the nitrogen peroxide gas, per million of flour, or one part of nitrogen peroxide gas, computed as nitrogen?

A. No—as NO₂.

Q. As NO₂? A. Yes.

Q. That would be much less than 1 part computed as nitrogen. A. Yes.

Q. Go on.

A. Now, having in this way subjected the flour to the action of nitrous acid, what I next did, was, to take a measured quantity of this bleached flour, and exactly the same kind of unbleached flour, and I always started, simply to keep my hands clean in making it, in the first instance, working up the unbleached flour, and then I took the bleached flour. Suppose I had a pound of one, I had a pound of the other. If I added a certain quantity of water to one, added the same quantity to the other. Then I kept both of these doughs—I made it all up into a dough, and I put them under a faucet and let
503 the water run on them, and wash it and wash it until I couldn't get any starch out of this dough.

Q. Now, let us pause there. You treated both flours—the bleached and the unbleached—alike? A. Yes.

Q. And made doughs? A. Yes, sir.

Q. And then you washed the starch out of the doughs?

A. Yes, sir.

Q. Now, how is that done?

A. Well, I took this dough and let the faucet run on it, and worked it with my hands, and got out most of the starch, and then the gluten came together, and I got a fairly round ball, and I continued until I got a mass which I could hold in my hands, and it was more or less sticky, and after having done that, I got it as dry as I could, by squeezing it, and then put it in a sausage machine, passed it through the sausage machine about ten times, so I got long strings coming out, looking like macaroni, and in that way I found it was possible to get rid of a great deal of the starch. It was still in the gluten, and having got rid of the starch, as much as I possibly could, both from the bleached and from the unbleached samples, I took one in the left hand and one in the right hand, and went on squeezing the dough for the same length of time, with about the same amount of force, so as to get two doughs which had practically the same amount of water. I tried to treat them in every way, exactly alike, so as not to introduce any atom, and having done this, having squeezed it and squeezed out as much water as I could out of the dough, sometimes in a half an hour, sometimes in three-quarters of an hour. Then I took these two pieces of dough, and put them on clean glass plates. Then I started using a number of glass tubes, and these glass tubes I connected up with a suction apparatus. After connecting up the two glass tubes with the suction apparatus, I got the gluten, which was remaining in there, into the two tubes, and, having the gluten in the two tubes, I then took the tubes away and boiled them,—

in some instances I boiled them, and in some instances
504 I didn't boil them. But, suppose I took such a tube—a glass tube, which was filled with the gluten, I boiled it for three-quarters of an hour. Then I took a file, and cut this long glass tubes into a number of pieces, from an inch and a half to two inches in length, so, I had in the one glass tube, bleached, and in the other glass tube unbleached gluten. Then, having, in this way, made a number of segments, say, an inch and a half to two inches in length, I had one bleached and one unbleached glass tubes filled with the gluten, and I took them and put them into a big bottle, and into this bottle I put gastric juices—the juice from the stomach, or pepsin—pepsin with hydrochloric acid one part pepsin and one part of hydrochloric acid, with two parts water. Then these tubes were put into an incubator, exactly at the same temperature, and by that I marked the degree of digestibility, and see whether one tube would digest more quickly than the other. Suppose this, here, is a tube, and I have got in here gluten. Of course, the tubes are much finer. Here, the digestive fluid can only act from here. There it can act from the sides, and, gradually, as it acts on this gluten, it begins to digest the gluten, and the amount of digestibility will differ, in different conditions. Now, what I always found, was, that the amount of digestion was much greater, in the unbleached, than in the bleached flour.

Q. Was that a uniform result in all cases that you tried the experiment in?

A. In all cases where I used gastric digestion. I have only examined in the pancreatic digestion, or in the gastric digestion. The bleached flour always showed that it digested much more slowly than did the unbleached flour.

Q. What are we to understand by "gastric" digestion?

A. Stomach digestion.

Q. And by "pancreatic" digestion. Is that what you call it?

A. Yes. From what some people call the "sweet bread"—the abdominal sweet bread. Now, suppose, in the first instance, I had a digestion, from here to here (indicating on a bottle).

What I did, I held the tube against the light and took a
505 very fine pair of compasses, and measured that distance.

Now, inasmuch as I had, sometimes, very little digestion, it was necessary for me to get accurate data, so, having a very fine pair of compasses, having measured this distance, I took a piece of smoke glass, and scratched the smoked surface with the pair of compasses, which would leave two lines on the smoked glass. Then I took the smoked glass, and put it under the microscope, and I magnified the image, in that way, sometimes 20, sometimes 50. That is, suppose it was one inch, here, on the smoked glass. I magnified it until its distance was 50, so,

under the microscope, we are able to see slight differences that we would not be, otherwise, able to see. Now, suppose, in one case, I had a digestion from here to here (indicating), and from here to here in the other case. I take these two measurements, and they express the amount of digestibility, in these colors which you see here (referring to a chart). These colors are indexes to the digestibility. This red indicates the digestion of the flour which was not bleached.

Q. Which was not bleached?

A. Yes. And this black indicates the flour which had been bleached.

Q. And the amount of digestion is indicated, how?

A. The amount of digestion is indicated by the height of the color. That means, the higher the column, the more the digestion, and the shorter the column, the shorter the digestion.

Q. So, the unbleached digestion in proportion as the red column is to the black column, on this paper?

A. That is, in this particular case, in the ratio of 38 to 26.5.

Q. Now, that was "Golden Drop" flour, that was bought unbleached?

A. That was bought unbleached.

Q. And you kept some [ot] it unbleached, and bleached some of it?

A. Yes, sir.

Q. And compared it? A. Yes, sir.

Q. And that paper, you have marked 2.5 per million. What does that mean?

A. That means 2.5 per million of NO₂.

506 Q. Used to bleach the flour?

A. Used to bleach the flour.

Q. And how long after the flour bleaching by that medium, did you make your experiment? A. Two days later.

Q. And what does that 56 mean?

A. That is the length of time expressed in hours. 56 hours after I commenced to digest, I got this condition. 56 hours.

Q. Now, you told us that you bleached some of this flour one part per million—by use of one part per million of nitrogen peroxide, as I understood you,—when I first entered upon this branch of your examination? A. Yes, sir.

Q. Did you make experiments with that?

A. I did, and the ratio of the unbleached to the bleached, was as 100 is to 87.

Q. Yes, or 100 parts of the unbleached would digest while 87 parts of the bleached would digest, under like circumstances? Is that it? A. Yes, sir.

Q. And then I also understood you to say—

Mr. Elliot: (interrupting) Just one minute. Was that experiment that you just referred to, with this same flour?

The Witness: Yes, sir.

Mr. Butler: I understood him, Mr. Elliot, he used quantities of this "Golden Drop" flour, and bleached some of it with one part per million, $2\frac{1}{2}$ parts per million—and that is represented on the chart—and then 5 parts per million, and it is the last one, now, that I am asking him about the result.

Mr. Elliot: 5 parts?

Mr. Butler: 5. He said 1 part was 87 to 100.

Q. And this is what— $2\frac{1}{2}$ is how much to 100?

A. (Referring to chart) You see—

Q. I know, but the result of your experiment, as shown on the chart,—may that also be expressed in figures? Counting the unbleached portion 100, what would the bleached portion be? A. 87.

Q. Of digested material? A. Of digested material.
507 Q. And that is the same, when it was bleached 1 part per million, too, as it is when it was bleached—

A. (interrupting) No. In the case of $2\frac{1}{2}$, it was as 76 is to 53, or as I put it down here,—I divided it,—38 is to 26.5.

Mr. Helm: Mr. Butler, will you get the different experiments and the different figures?

Mr. Butler: Yes. Let me finish the next question. Then I will come back and summarize it all, so it will be clear on the record, and clear to you.

Q. Now, on 5 parts?

A. At 5 per million, the ratio was, as 75 is to 40.

Q. Now, we will back up, and state them all in the same terms. In the instance where one part of gas per million parts of flour was used, the digestion was, unbleached 100, bleached 87? A. Yes, sir.

Q. Where $2\frac{1}{2}$ parts of gas were used, per million parts of flour, the unbleached digested how many points? A. 76.

Q. While the bleached digested— A. 53.

Q. 53? Where 5 parts were used, the unbleached digested— A. 75.

Q. 75? And the bleached digested— A. 40.

Q. 40?

Mr. Butler: Does that make it clear, Judge Helm?

Mr. Helm: Yes, sir.

By Mr. Butler:

Q. Aside from these experiments, have you compared the digestibility of this same "Golden Drop" flour, unbleached, with other flours which you tested for and found to contain

nitrite reacting material, of the kind that is introduced in the treatment of flour by nitrogen peroxide gas, diluted with air?

A. Yes, sir. I had sent to me by the Government, altogether, nine samples. I knew nothing whatsoever about these samples, excepting they indicated to me the amount of nitrites which they had recovered.

508 Mr. Elliot: Now, may I interrupt just a moment. Are you going to ask him to compare the digestibility of this "Golden Drop" flour with some other flours?

Mr. Butler: Yes.

Mr. Elliot: Well, then, your Honor, we will object to that, because it is manifest you can't make comparisons between two different flours, and it would have no relevance, whatever, to any issue in this case. So far as he confines himself to comparisons between the same flour, bleached and unbleached, that is one thing, but, now I understand the witness is going to make comparisons between this flour, and some other flours that he doesn't know anything about.

Mr. Butler: He knows that they contained some nitrogen peroxide gas, or the nitrite reacting material.

The Court: Yes, but how would he know the other ingredients?

Mr. Butler: He made no analysis as to that.

Mr. Elliot: These two flours showed different digestibility.

Mr. Butler: Oh, I understand. I don't claim that all flours are alike.

Mr. Elliot: Well, that is my objection to this experiment.

Mr. Butler: I see your objection, perfectly, and concede it what force I think it is entitled to. We have now shown, by the witness, that he obtained some flour sold in the market, and treated some of it, and left some of it untreated, and we find that digestibility is impaired, quite substantially, increasing as the amount of nitrogen peroxide gas, employed for bleaching, increases, that the digestibility decreases as the medium increases. Now, this question calls for this comparison, namely, this same Golden Drop patent flour, marketed in New Orleans, compared with other wheat flours, which he tested, and found contained nitrogen peroxide gas.

509 Mr. Searritt: Mr. Butler, do you mean our bleached flour?

Mr. Butler: This is bleached flour. Not in this immediate question, I don't Judge Scarritt. No. I will be careful to state it just as it is. He was sent 9 specimens of flour, the history of which he doesn't know, by one of these bureau heads, and he entered upon the comparison of the digestibility of the flour, having ascertained that each sample gave the nitrite reaction test, and has made memoranda of the results of that, disclosing what will be shown.

The Court: Some bleached, and some unbleached?

Mr. Butler: Yes, sir. His standard was the "Golden Drop" unbleached, compared with flours of unknown brands, or origin, so far as he is concerned, bleached.

The Court: As to digestibility?

Mr. Butler: Yes, as to digestibility. Now, the objection is this, that there is no foundation laid, because flours are known to differ in digestibility. That is as I understand it.

Mr. Scarritt: And in quality.

Mr. Butler: And in quality and strength. Now, that is the position of the gentlemen on the other side, I think, fairly stated.

Mr. Scarritt: Well, it doesn't enlighten the Court, or the jury, if your Honor please, with reference to the flour in question,—a comparison between this "Golden Drop" flour that he has tested, here, and flour that he don't know where it came from, or what their quality or strength is, or what they were made out of—what kind of wheat, whether winter wheat or spring wheat, or whether soft wheat or hard wheat. It can throw no light on the subject, at all. It is absolutely immaterial to this question, as to what is the digestibility of the flour in question. It is simply consuming time, when we don't get any benefit from the consumption of the time. It seems to me altogether beside the case, and the issue
510 here. The issue, here, is, so far as this question is concerned, what is the digestibility of the flour in question—the flour that was seized? Now, as Mr. Butler said, it is admitted, on all hands, that there are no two flours exactly alike, and a comparison between an unknown flour, would not shed any light, at all here, as to the digestibility of the flour in question. It is, therefore, absolutely immaterial to any issue in this case.

Mr. Butler: I hadn't concluded my statement when Judge Scarritt commenced his.

Mr. Scarritt: I beg your pardon.

Mr. Butler: I was undertaking to state my understanding of the point of the objection. I am very glad, however, Judge Scarritt, to have had your views, before I concluded my statement.

Mr. Scarritt: You are welcome.

Mr. Butler: As to why I think this testimony may properly be received. It was not admitted on all hands that there are no two flours alike. It is undoubtedly the fact that there is great variation in digestibility of flour. Now, the proof, so far, on this subject, shows that when you treat the same flour with this Alsop bleaching process, as it was described in the patent, digestibility is impaired, proportionate to the degree of treatment. Take two flours, one bleached, and compare it with the other, unbleached, and we have these results. So the proof stands.

Mr. Helm: Mr. Butler, the proof doesn't show this was flour bleached other than in the laboratory, by the chemical process.

Mr. Butler: Yes, I know. This testimony shows it was bleached by nitrogen peroxide gas mixed with air, one part per million, $2\frac{1}{2}$ parts per million, and 5 parts per million. The proof shows that the Alsop process employs nitrogen peroxide gas, mixed with air, and it doesn't make any difference where the gas is made, whether from decomposing
511 animal matter, chemicals in the Torelli (?) method, which Doctor Wiessner claims is infringed by the Williams method, or how. The nitrogen peroxide gas is the bleaching reagent, wherever produced. The amount used in this case, 1 part of the gas per million, is, under the proof, less than 1-20th of that added to the flour seized in this law-suit. Now, our next step is, taking an unbleached flour of commerce, and comparing it with the bleached flours of commerce, wherever found,—and, as we will later prove, these samples sent to him were samples of flour seized by the Government as adulterated, in shipment, or at least some of them, and I think all.

The Witness: Two were not.

Mr. Butler: All but two then. Seven of the nine,—all but two samples—were samples of flour seized by the Government as bleached flour. He found that it gave the bleaching reaction. Now, aren't these objections all to the weight of the testimony, and not to the admissibility of it? If, as in the case of this bread (referring to the two pieces of bread heretofore mentioned), digestibility is inhibited by this treatment, may that not be shown? If it is impaired, may it not be

shown? And they say it doesn't shed any light upon this flour (referring to flour contained in Government's exhibits 8 and 9). We haven't any of Brother LeFlange's flour, so far as we know, that wasn't bleached by two bleachers, in full action upon it, at the same time. The question we are trying to get at, is, whether it hurt that flour. It does hurt the "Dew Drop". It does hurt everything that we can find, as compared with the "Dew Drop", and our next step will be with that flour (referring to Government's exhibits 8 and 9), out of those bags, which fails to respond with other flours found here in Kansas City, and we will show that the divergence is great. All of this tends to prove that the digestibility of that flour in that bag, shipped in interstate commerce to B. O. Terry, after
512 it had been bleached by two bleaching machines, on the 31st of March,—more than 60 days ago,—is now impaired as to digestibility. It is merely the manifestation of the operation of a law of chemistry as certain as the law of gravity, as certain as anything can be, and I think it is proper to show how bleached flour, or flour found with this nitrite reacting material in it, digests. How fast does it digest? How fast do wheat flours, bleached digest? There is variation, in all flours,—perhaps in the same sack, caused by a different head of grain, maybe. One may have been blighted the other ripened naturally. There may have been some variation, but, where it is great, where it is evidence of the operation of a law that is certain, it seems to me it is proper evidence to show how this thing worked. It seems to me it is admissible evidence. Of course, if the variation be so slight as to be accounted for by difference of digestibility in the flour, itself, the testimony is not of weight, but, where the divergence is wide—and I haven't undertaken to state what it is, because it would be manifestly improper to do so until your Honor has ruled upon it—but, does not that determine the admissibility? If the experience be uniform, it would manifest the operation of a law which tends to prohibit any digestion, when sufficient quantity is used. It seems to me it is admissible evidence. I am not speaking of its weight; that comes later.

Mr. Elliot: Now, Mr. Butler having given some testimony—

Mr. Butler: (Interrupting) Mr. Elliot, if I gave any testimony, I certainly was not trying to do so.

Mr. Elliot: Well, you said that flour was injured. Isn't that testimony?

Mr. Butler: I said—

The Court: Oh, let it go.

513 Mr. Butler: Just a moment. Mr. Elliot, I didn't intend to do anything of that kind, and if I have stated anything, I wish to withdraw it. I am not trying this case that way, gentlemen. The testimony [shown] that this flour was treated by this treatment, and did not digest. Now, that is his testimony.

Mr. Elliott: His testimony was that, by his laboratory experiments, he got a difference in the rate of digestion. Now, that's all that can go to the jury. You, nor the witness, either, has a right to say under your Honor's ruling, that that flour is injured. But that wasn't my point, your Honor.

The Court: Let me ask you a question. There have been a great many questions asked, here, with reference to whether the flour was bleached by the Alsop process, or by the chemicals used in the laboratory. The witnesses, so far, in their testimony, in chief, have said there is no difference, provided, always, of course, it is the same quantity, pro rata. I see Judge Scarritt shakes his head at that. Now, that's the way I understand it. Am I right, Judge Scarritt?

Mr. Scarritt: I believe not, your Honor. They have said that that is relatively correct.

The Court: Sir?

Mr. Scarritt: They have said that it is relatively correct, because, in every instance, they have shown that they introduced this gas into a closed receptacle with the flour, and shook it up, and that, under the same conditions it would be the same, but they have shown the conditions were different.

The Court: Well, let me ask you another thing. Is there any difference? You take issue that the witnesses have thus far, said, whether nitrogen peroxide is generated (if that is the word) by the flaming arc playing on atmospheric air, and if it is generated by the use of sulphate of iron, or in the laboratory, or in any other way?

Mr. Scarritt: We take issue, that the difference in the application of it—

514 The Court: Oh, no. I didn't ask you that. Of course, I don't care to cross-examine you, Judge.

Mr. Scarritt: That's all right, your Honor.

The Court: But you don't understand my question. Are you going to bring chemists here, that will testify that nitrogen peroxide is anything but nitrogen peroxide?

Mr. Scarritt: No, sir.

The Court: How?

Mr. Scarritt: No, sir.

The Court: Regardless of how made,—whether by the flaming arc, or sulphate of iron, or in the laboratory?

Mr. Scarritt: Or any other way. But, if your Honor, please—

The Court: (interrupting) Now, just wait. Don't get excited. That a nitrite is a nitrite, wherever formed? When bread is made, is there any difference?

Mr. Scarritt: I would like to ask your Honor, or somebody that knows, if they have ever seen a nitrite, and what it looks like? I haven't found out what a nitrite looks like, or what it is—whether it is an animal, or a vegetable, or a mineral.

The Court: Well, we are not making any progress. I wanted to see whether we could narrow the issues.

Mr. Scarritt: That is my idea exactly, your Honor. It would be interesting, but not valuable, as evidence, for this gentleman to go ahead, and introduce nine other issues in this case, which are foreign to the issue which we have under consideration. He wants to bring out something about nine other flours we don't know anything about, and in the gluten of which, as had been testified to here, time and time again there is a difference in the digestibility, right straight along. There has been no dissent, as I understood the evidence, although I am not a chemist, and don't pretend to know anything about half of what is being said, here, but I have learned this, 515 that all of these gentlemen for the Government have testified that there is a difference, and a vast difference, in the digestibility of the gluten, of which this gentleman is talking and in the different flours. Now, in order to obtain even an approximate relative sameness in the tests, the conditions must be the same. Now, if these nine other cases are introduced, the question will naturally arise, as your Honor can well see, and as you have the right, under the rules of evidence as I understand them, to decide, and to anticipate that it will have to be determined under what conditions the gas was introduced into the flour, what the quality of the flour was, where it was raised, what they had in it in the first place, how old it was, whether it was whole wheat flour or middlings, or these other kinds of flours that this gentleman and the other witnesses have talked about—all those questions come into the solving of this proposition. Now, if we are going into those questions, and determine minutely as to the

relative quality and the digestibility of the gluten, in each one of these nine flours, we are going to be here nine years; and I think, in the interests of time and because it throws no light upon the direct issue made by the libel in this case and the answer in this case, that it ought to be cut out, so far as the ultimate effect is concerned I don't fear that, at all, because any man of ordinary, common judgment can see that it has no effect on the issue in this case, and that is, as to the quality of this flour in question. Every miller makes a different flour. That has been testified to, here. Depends upon the mill and the efficiency of the miller. All those questions enter into it and it seems to me we are wandering wide of the mark, in this case, by going into this sort of testimony, and it is for that reason, and especially in the interests of saving time, that I insist upon suggesting to the Court my reasons for these objections.

Mr. Elliot: I was just going to suggest to the Court, being quite calm, now—

516 Mr. Butler: Are you going to talk awhile, to save time, too?

Mr. Elliot: Under the libel, as Judge Scarritt states, it is claimed that this flour was bleached by the Alsop process, and that it has been injured in certain respects. Now, of course, if your Honor please, we admit the bleaching by the Alsop process, but we deny that the flour has been injured in any respect.

The Court: Now, right there. Are you going to tender an issue, that it makes any difference whether it is bleached by nitrogen peroxide, by the Alsop process, to-wit, by the flaming arc? I just want to know. Now, I think I am making no criticism on Judge Scarritt, or Mr. Smith,—you seem to be the chemistry lawyer of this suit.

Mr. Scarritt: I admit that, your Honor.

The Court: Do you claim it makes any difference, whether the nitrogen peroxide is carried into the flour containing 10 per cent of water, when it is generated by the flaming arc, to-wit, by the Alsop process, and a like quantity generated by the laboratory, or by sulphate of iron, or anything like that—any other method?

Mr. Elliot: That is just the point, your Honor, if this gentleman shows—

The Court: (interrupting) Oh, no. Hold on. Do you understand my question?

Mr. Elliot: Yes.

The Court: What do you say about this?

Mr. Elliot: I say if this gluten is injured by that process—

The Court: (interrupting) That's your answer, is it? Well, all right.

Mr. Elliot: Now, I say distinctly that there is no evidence—

517 The Court: Oh, we are not talking about that.

Mr. Elliot: (Continuing) lining up the laboratory method of bleaching, with this Alsop process of bleaching, and, of course, we are going to say there is a difference.

The Court: Now, then, hold on a moment. Now, you Alsop people, and the Andrews people of England, joined teams, and in the courts of England and France and this country your people, and the Andrews people, combining, to use the street expression to "jump onto" the Frenchman, Frichot, didn't you?

Mr. Elliot: There is no evidence of that.

The Court: Oh, no; but the 168th Federal report that has been in this court—well, isn't that so?

Mr. Elliot: No, sir.

Mr. Scarritt: Now, the issues are made in this case, and let's stick to the pleadings.

The Court: Let's talk about that Frenchman.

Mr. Scarritt: I don't think we ought to talk about foreigners.

The Court: Now, you said, Mr. Elliot, that the Frenchman's process injected nitrogen peroxide in there by a chemical?

Mr. Elliot: No, indeed we didn't.

The Court: You did not?

Mr. Elliot: No.

The Court: Then I have read to no purpose.

Mr. Elliot: The Frichot patent was introduced in evidence to defeat the Andrews patent, but the other side tried to show that it used nitrogen peroxide in there, and failed in it, and the court said it didn't anticipate it. It was an ozone generator.

The Court: All right.

Mr. Elliot: I don't want to bring this out, your Honor. All I wanted to bring out was the uselessness of this.

518 The Court: The question I have in my mind, Mr. Butler, is this. While I am disposed to be against you, largely on another matter, but in a general way covered by Judge Scarritt,—for instance, two flours might be of unequal digestibility, because the one carried a greater amount of protein and gluten, or fat, or bran, or the outer layer next to the bran, or something of that kind, so that, for this witness to answer this, wouldn't we then have to find out, before the comparison became of any great value, as to what were the component parts of the other flour, regardless of nitrogen peroxide? Wouldn't we? Wouldn't we get off into an indefinite field, by making this comparison? It looks to me like we would. Now then so far as I understand it, these comparisons have been made between the same flour, to-wit, the "Golden Drop", bought in a grocery or provision store in New Orleans, in which this gentleman took part of it to his laboratory and bleached it, 1, 2½ and 5 parts, making three tests of the same, identical flour, less the nitrogen peroxide. Now, that is fair. Suppose we take another flour. How can that throw light on it? Here we take the same flour—the so-called "Golden Drop", and, of course, that is only a fanciful name—without knowing where the wheat was grown, or where manufactured,—and comparing it with some flour that we don't know from whence it came, or where milled,—aren't we getting into a field of uncertainty? It looks to me like we are.

Mr. Butler: I will withdraw the question.

The Court: I will sustain the objection.

(Examination of Dr. Mann continued)

Q. From your professional training, experience and experimentation, what is your opinion as to the effect of nitrogen peroxide gas applied to flour, as it is applied by the Alsop process of bleaching it upon the digestibility of the flour and of bread made from the flour?

A. As the result of Alsop's treatment, the flour and the bread made from it or any other article manufactured from that flour is distinctly very much diminished in nutritive value.

519 Q. And as to digestibility?

A. And that the digestibility of any article made from such bleached flour is greatly less than that of the unbleached flour previous to treatment.

Q. Why is that true; what is the reason for that?

A. The reason is that, as soon as the nitrous acid, which is generated by the Arc comes into contact with the mass, why there is a certain percentage, about one-half, of nitrous acid converted into nitric acid, and this nitric acid acts directly

upon the gluten which is present in the flour and is present in any article manufactured from that flour, and the action of the nitric acid, which is formed from nitrous acid by oxidation,—the damage done, is directly proportioned to the amount of nitrous acid which has been put into the flour.

Q. In view of Mr. Elliott's understanding of your testimony with respect to this "Golden Dew Drop" experiment which you have described—

Mr. Scarritt: There is no "Dew" in there.

Mr. Butler:

Q. "Golden Drop". Let me understand whether or not the impairment of digestion of gluten indicates or is an injury to the flour and bread made from the flour?

A. Inasmuch as gluten of the flour is the most essential constituent, if by the separation of its most essential constituent from the rest of the flour, I can show that this protein does not digest as rapidly as it would otherwise, if it had not been bleached, I must arrive at the conclusion that owing to the gluten being much less digestible, that therefore there is an extra amount of work on the body and therefore instead of being able to digest in a given time two loaves of bread, I can only digest one loaf, or to put it more distinctly, if I take a meal of bread I have to take twice the length of time to digest that bread if it has been bleached.

Q. Is that an injury to the food, the lengthening of the time of digestion and digestibility?

By Mr. Elliott: Do I understand the Doctor to say it takes twice as long to digest bleached flour bread?

By Mr. Butler: He said, by way of illustration, for example if it takes twice as long to digest a beefsteak, it is not as good a beefsteak. Is it your understanding that the impairment of digestibility in that way is an injury to the food. A. Yes, sir.

Q. Can the extent of the injury to the flour bleached by this Alsop process be determined by the amount of nitrite reacting material recoverable from the flour at any given time after the bleaching?

A. No, sir, it can not.

Q. Why not?

A. Because, if I have a certain amount of nitrous acid this nitrous acid is gradually converted into nitric acid and the amount of damage which is done to the gluten will depend directly on the length of time the nitrous acid has been in contact with the gluten; therefore, if the flour is bleached to-day, the amount of damage which is done to the gluten is not so great as will the damage be, say a month hence or two months hence

or six months hence. We must take into consideration the time factor, and I have here a definite proof of that in an experiment made of some flour so bleached, per million. Your Honor, this is a flour which was sent me by the Government and this does not come under the heading that the flour bleached and unbleached of 2.5 per million.

The Court: The same flour?

The Witness: The same flour, which I have here on the chart; one bleached and one unbleached.

The Court: The one bleached, what percentage?

A. 2.5 Per million.

Mr. Butler:

Q. What is the result of that?

A. The result of this flour—I don't know when it was bleached, but definitely, it was in my laboratory for over a week before I experimented, and comparing the digestibility of that flour which was bleached exactly the same extent of that grade and proportion, which is much greater—

By Mr. Elliott: What did you compare it with?

521 A. I compared it with this (indicating chart).

Mr. Elliott: That comes under your Honor's ruling.

(The Court hereupon took a recess for a few minutes, after which time the further examination of the witness was continued as follows, to-wit):

By Mr. Butler:

Q. You may give us your opinion whether or not the treatment of flour by the Alsop process for the purpose of bleaching it affects digestion by the pancreatic fluid?

A. Yes, there is a difference between the bleached and unbleached flour as far as the pancreatic digestion is concerned. All these experiments by pancreatic digestion require a very great length of time. I have found the flour very, very slowly digested by the pancreatic digestion, where it is very quickly digested by the stomach. In some cases after five days digestion, there is a difference between the two of practically a ratio of 6 to 4. Now, a curious thing, is when I apply pancreatic digestion and I have a bleached flour, what happens? In the first instance instead of digestion beginning to dissolve away, the bleached flour begins to swell. Having these tubes, suppose I have some gluten in here which has been bleached; instead of digestion showing by the substance being taken away, what happens? There is a considerable swelling beginning. I

never noticed it with unbleached flour, but as soon as I begin with bleached flour, it is getting more instead of less.

Q. Now does it make any difference as respects the effect upon flour from NO₂ how the NO₂ is made, whether by the Flaming Arc such as is described in the Patent of the Alsop process or whether it be made by chemicals or in any other way?

A. No, sir; nitrous acid is nitrous acid the world over.

Q. Assuming a flour be so treated by adding air and nitrous acid gas and adding these nitrites to it, does it make any difference whether it is done in a large glass bottle or whether it is done by the mechanism of a process which conducts the gas from an electric arc generator through a receptical or tank and then into an agitator—Does it have any different
522 effect upon the flour assuming that each method adds a like amount of nitrite reacting material?

A. No, sir, I don't think that makes any difference whatsoever.

Q. Is nitrogen peroxide a definite chemical substance?

A. Yes, very definite.

Q. Is the reaction taking place when it comes into contact with water and flour definite? A. Absolutely definite.

Q. Well known? A. Yes.

Q. Acts certainly? A. Absolutely certain.

Q. Have you any opinion based upon observation as to the effect of nitrogen peroxide upon the tissue of any plants or animals?

A. Yes, sir, I made a whole number of experiments with bleached flour on a certain plant which is in the habit of catching insects and digesting these things.

Q. Let us go a little slow until we understand that plant; we do not have it here, I think. We do not where I am. What is the name of that plant? A. *Drosera*.

Q. You say it catches insects?

A. There are two species; one has a flat leaf. Imagine my fingers to represent it, and a number of tentacles on its surface, and a fly settles on that. Each of these tentacles has a little drop of viscid material on it; the fly rests on that and the tentacles close over it and it is digested; and the juice excreted by these leaves is very similar to the juice excreted by our stomachs, and the acid in it is hydrochloric acid.

Q. The leaves close up over the insect and then secretes juices comparable to the gastric juices of the stomach, and digests the insect? A. Yes, sir.

Q. Is that a part of the feeding process of the plant?

A. Yes, sir.

Q. Now, have you tried any bleached flour on that and compared it with the same amount of flour unbleached?

A. Yes, sir.

Q. Now, you may describe the result of that to the jury?

523 By Mr. Elliott: I object to that as incompetent, irrelevant and immaterial, what effect it has on insects that are on some sort of plant down in Louisiana.

Mr. Butler: That is not quite it; What effect does the nitrite reacting material have upon it.

By the Court: Overruled.

Claimant excepts.

A. These plants are built up of a number of cells, just as we are built up of a number of what we call cells. Here is such a cell (indicating on chart). This cell has got inside it little sacs which we call nuclei,—

Q. Let us go a little slow, and see more about that. The chart which you have made reference to in your last answer includes, as I observe it four different figures, am I right about that?

A. Well, there are more. There is one, two, three and that is four.

Q. Now each figure represents what?

A. A certain condition either of resting or different stages of digestion.

Q. A certain condition of rest, and a certain condition of digestion?

A. No, this is the same before anything reaches it.

Q. This picture, does it indicate a microscopic view?

A. Yes, sir.

Q. Of what?

A. This picture shows a microscopic view of the various cells which together lay right over the tentacles which I previously described.

Q. That is cells of the leaf of the plant known as Drosera?

A. Yes, sir.

Q. These were prepared by you from your own experiments?

A. Yes, sir, this is all my own work. Now the magnification—

Q. We will mark this section by the letter "A" for example, so that we can refer to it more definitely; the next one, we will mark as "B", and the next "C", then "D" and "E". We will refer to the whole chart as Government Exhibit No. 11; Now, this chart, Government Exhibit "11" was made by you?

A. Yes, sir.

(The Chart was here marked for identification "Gover't Exhibit 11, F. T. L.")

524 Q. And indicates, as I understand it something in connection with your observations of the effect of flour bleached and unbleached, that is, being the same kind of flour bleached and unbleached, upon vegetable tissue, being the leaves of the plant known as *Drosera*, is that correct?

A. Yes, sir.

Mr. Butler:

Q. Now give Judge Scarritt an opportunity to present an objection, if he has one.

By Mr. Scarritt: If I understand it, you mean the action of the flour itself upon the vegetable.

By Mr. Butler:

Q. Was it the flour itself put upon the plant?

A. No, the gluten.

By Mr. Scarritt:

Q. The gluten of the flour put upon the plant and the effect it has upon the plant?

A. Yes, sir, particularly on this part here "A".

By Mr. Butler: These particular pictures of microscopic sections of calls which are marked "A", "B", "C", "D" and "E" respectively indicate something of the result obtained by your experiment.

By Mr. Scarritt: We object to that as being immaterial to any of the issues in this case.

By Mr. Butler: I had not put the question. I wanted as preliminary to the objection to show what the studies indicated here which you will describe, if permitted to, indicate. Do they show the comparative effects upon the tissues of the plant, of the different kinds of gluten, one from bleached and from unbleached flour? A. Yes.

Q. Now, you may describe the experiment.

Mr. Scarritt: We object to that because it is immaterial to any issue of the case. It is too remote and uncertain in its application to the issues in this case; because it is not contended that the flour in this case or the "Golden Drop" or any other flour is fed to the human race as flour, and it does not relate to the effect that the eating of bread made from any flour might have upon the human system; even if it
-525 did, there is no testimony and no natural conclusion that the action even of the bread upon a certain plant, would have any relation to the effect upon the human system, and further, in the interests of time, I object to the question.

By the Court: The witness may answer.

Mr. Scarritt: We except.

Q: Speak distinctly and slowly enough, to describe your experiments in detail.

A. In the first instance, I should like to point out there is absolutely no difference whatsoever between plant and animal cells as soon as we came to the question of digestion. Having been engaged in this particular work for over ten years.

Mr. Scarritt: I object to this argument.

The Court: Yes, get right down to the question, please.

The Witness: In this particular case, this first figure here shows the cells of which the *Drosera* is composed, this magnification from here to there (indicating).

Q. You are now pointing to "A"?

A. I am pointing to "A". This indicates the resting condition of the cell; that means a cell that has been given no nourishment. Now, what is going to happen when I feed that cell, is indicated in "B", "C", "D", and "E" and "F". As soon as I feed this cell, if I put some gluten on this *Drosera*, what happens is some of the material which has been digested goes into the cell; in consequence of this material passing into the cell, I get at once a change in this chemical laboratory of the cell, in consequence of this.

Q. When you say "chemical laboratory" you are pointing to a disk like arrangement—what is that called.

A. The nucleus.

Q. Changing it from the appearance that is in "A" to that in "B"?

A. Yes, sir, and still later, which is presented by "C". That gluten—as soon as food reaches the cell, the cell begins to make some use of the food, to work it up, and the use of this is shown in a varying way. This little blue spot here—,

526 Q. Now, when you say "here" those who read this record will not be able to look at you, so, if you will say "near the circumference of the nucleus" on "A" then we will understand it.

A. Yes, sir. The blue areas marked here in the nucleus in the first figure "A" we must compare them with the figure "B" and we find these small areas have enormously increased in size; they are enormously increased in bulk. Here in "C" the increase in bulk is much more marked than it is in "B". Now, the time taken to produce this change from "A" to "C" differs with the kind of food which I give. If I give food which is easily digested, I can produce such a change much more quickly. To give you one instance; I made a number of experiments with white of egg and with various products which

I get by the digestion of white of egg. Those changes from "A" to "C"—If I fed to the plant a hard boiled egg, taken from 30 to 36 hours to produce, the same change from "A" to "C" I can get in from 7 to 10 minutes if I give digested white of egg.

Therefore, I have here, when I study these figures a direct indication as to the ease with which a certain substance is assimilated; the more difficult the thing is to digest the longer will it take for "A" to be changed into "C". Now taking such leaves and feeding them on bleached and unbleached flour, I find the difference between these two figures here, say between that first one—

Q. That is between the nucleus in "A" and the nucleus in "B"?

A. Yes, sir, a difference of ten hours on an average. That is to say this change represented here in "B" is produced by unbleached flour in 20 hours, and it will take with bleached flour, 30 hours; therefore, I reason that the bleached flour is much less easily digested by this plant than is unbleached flour. Now, if we look and compare "C" with "D", to see what is going to happen next, then you see this blue material here in figure "C" which is the so-called nucleus, hemoglobin, it becomes less marked.

Q. When you say "becomes less marked" than the "C" you indicate "D".

A. That we cannot demonstrate—

527 Q. You indicate "D"?

A. "D" is less than "C" and "E" is less than "D".

Q. As soon as this material which you call the nuclei hemoglobin changes, the nuclei grow less?

A. The protein substance begins to get less and first of all, this enzyme oxide, that is this material, is used up and degenerated, giving rise to that very enzyme which that plant needs for its digestion. You come here to "F" which shows you after three days this cell has passed back—

Q. When you say "This cell"?

A. The figure "A" cell, represented in Fig. "A" has been converted into a cell which looks again like "A"—"F" looks like "A", which means that cell is once more in a resting condition; that means it is ready to take up some more food. Now, these results which I got here, I get with unbleached flour, the same "Golden Drop" and this Golden Drop which had been bleached to the extent of 2.5 per million. Now, in addition to these experiments, in addition to having this effect of producing this slowing of 30 hours from twenty hours, in addition to this effect, I have a number of experiments in which I used a much higher bleaching, I have used four per million, and I have used—

Q. How many parts per million of Nitrogen Peroxide gas were used upon the bleached flour to get the results that you have described from your pointing out to the chart just now?

A. 2.5 per million, the same which I showed in the previous chart.

Q. Now, you made other experiments with other degrees of bleaching? A. Yes.

Q. What other degrees?

A. The highest was 13.6 per million—I went on to bleach the material until it got the same color as the bread which is there. Now, that is so exorbitantly bleached, which is beyond all question and never met with anywhere except artificially—Now taking 13.6 per million and putting it on the leaf—not this particular species of *Drosera* but another species, I could not get hold of the same species this year, but I got hold of another species with long leaves with all the tentacles sticking out here. Upon this particular *Drosera* I put

528 one lump here of unbleached, then slightly bleached, more bleached, and heavily bleached, all on the same stalk so as to have a direct comparison between the different effects produced by the different flours, and I found when I put this heavily bleached 13.6 material on here, that the leaf changed and it looked, to begin with, to the naked eye as if it was diseased, if I used that very heavily bleached material, which give me a nitrogen and equal to 56 at least. To begin with, I did not realize what I was doing so I put the most heavily bleached flour at the bottom and in consequence that leaf died off until the whole leaf bent over. So to have the same conclusion, I put the most heavily bleached material at the top of that leaf, and the less bleached at the bottom so as not to have that degeneration happen to that leaf.

Q. For what reason is there such a difference in the digestion by this plant of flour—bleached and unbleached: What is the reason for that?

A. As soon as the nitric acid, into which the nitrous acid is converted comes in contact with these protein substances and all these protein substances, there is induced a chemical change in the protein substances, in addition to which I have the direct action of the nitric acid on the enzymes which have been already formed, so I have two things. First of all the action of the nitrous acid in the proteins on the enzymes and second the action of the nitric acid on the cell itself. So there are two actions; the action on the enzymes and on the cell itself.

Q. What is the effect of taking food containing such nitrite reacting material into the stomach?

A. Suppose I take bread which contains nitrite, suppose I take sodium nitrate which is used medicinally, as soon as that nitrate comes into the stomach, as soon as the stomach begins excreting, it excretes hydrochloric acid, as soon as that nitrite comes in contact with the hydrochloric acid, there is liberated at once free nitrous acid. If I have, for example, sodium nitrate and hydrochloric acid which I have, the nitrite I get from the bread and the hydrochloric acid I get from the stomach, as soon as the sodium nitrite and the hydrochloric acid of the stomach meet, I get formed sodium chloride which is an incompatible salt, and free nitrous acid, which free nitrous acid coming in contact with water, you get 529 the stomach, as soon as the sodium nitrite and the hydrochloric acid of the stomach meet, I get formed sodium chloride which is an incompatible salt, and free nitrous acid, which free nitrous acid coming in contact with water, you get 50 per cent nitrous acid and 50 per cent nitric acid, the percentage being directly proportional to the amount of nitrites which I introduced.

Q. Now, will the action in the stomach be the same whether it be a nitrite reacting material that is found in the flour bleached by the Alsop process or whether it be the nitrite of the saliva or the nitrite of hams or of decaying food, or anything of that sort?

A. Yes, sir, the nitrite always performs in the same way.

Q. No matter how the nitrite gets into the stomach?

A. No difference—it makes no difference.

Q. No matter how it is made, whether by a flaming arc, or by decomposition or the smoking of hams or whatever it is?

A. No, nitrite is a definite chemical substance.

Q. Now, in case of over treatment sometimes spoken of—over bleaching what is the effect, first upon the color of flour—that is, the excessive treatment?

A. Well, we have to distinguish two distinct things. The first is the action of the nitrous acid on the oily material which becomes bleached, then the second change which we get, the change which is indicated in the bread, has nothing whatever to do with the oil—the second change is simply a change produced by the nitric acid acting on the gluten which means an impairment, a changed gluten into that substance which I have called the zante protein substance.

Q. The bleaching effect is the action of the nitrous compound upon the oil? A. Yes.

Q. What takes place if you keep on adding N. O. 2 diluted with air?

A. Then it effects the gluten and changes the gluten.

Q. What effect upon the color?

A. The color will gradually become more and more yellow from the comparison with the color—

Q. On these pieces of bread that you put nitric acid upon to-day?

A. It is not as intense as that. It is like the color of a new straw hat; it is much paler than that (indicating 530 bread).

Q. Now you speak about the effect upon the color; now the effect upon the substance itself as to the condition of the poisonous food, what effect has over bleaching or over treatment or long exposure to this gaseous medium in the manner of the Alsop process, upon that matter?

A. There are contained in the gluten two substances which are absolutely essential to human life. Now one of these substances is tryptophane—indol-amino-propionic acid: Now this substance, the tryptophane is absolutely essential to digestion. If I take a dog and give that dog nothing but gelatin jelly, such a dog will die of starvation; if I take this gelatine and add tryptophane to it, such an animal will live. If I take milk and digest that milk with pepsin or trypsin, that tryptophane is still there and if fed to the animal he will still live. If I take my milk and digest it with hydrochloric acid for example and destroy the tryptophane—and I have made an extensive number of experiments in the last six months on this point,—the tryptophane is destroyed and the animal can't be kept alive. The tryptophane, which I speak of, is the substance which gives rise to that yellow color. There is no substance in the whole of the gluten which gives rise to the yellow color with such intensity as does this tryptophane. These experiments which I have made, if I take the color such as that I may not be called to demonstrate tryptophane; all the samples which were submitted to me by the Government upon which I could not testify—in all these samples of bleached flour which were given to me, I tried to compare the amount of tryptophane and found, with the amount of tryptophane found in unbleached flour, and I found no difference. Now, comes the other question; there is a second substance called Lysin, and now this substance lysin is just as important as tryptophane, I used material which had been given to me by the Government, which I can't testify to, but used material which I had treated with nitrous acid to the extent of 2.5 per million, and 5 per million.

Now, I found on doing this that the amount of lysin in 531 2.5 per million in the unbleached flour was 1.92 and that

1.92 is to the bleached flour as 1.76. Now, this lysin is so important a substance that if it be absent from the food the animal can't live. It follows then that from this flour which was bleached to the extent of 2.5 per million, this substance which is only present to the extent of 2 per cent in normal flour—I get lower figures because I crystallized more roughly—my figures are somewhat lower than the figures in the books—

my figures are constantly lower because I crystallized the thing half a dozen times, at least, to make sure of the right proportion—You see the substance is only 2 per cent in this flour, still even subjecting it to 2.5 per million reduces this amount, and it is absolutely essential to life. If we have tryptophane present and lysin is absent the animal will die. A whole lot of experiments made by others and I made experiments myself.

Q. Did you make experiments of the effect upon lysin by a treatment of 5 per million? A. Yes, I—

Q. If 2.5 per million reduced it from 1.92 to 1.76 what did the 5 treatment do? A. I did not use five but I did 10.

Q. What did the 10?

A. 50 grams gave me .53, that is 100—

Q. Well, express it in the same way you did with respect to the 2.5, so as to make the result easily comparable?

A. Yes, 100 grams would give me—instead of giving me 1.92, as in the case of unbleached flour only gave .66.

Q. That is you start out with bleached the amount 1.92?

A. No, sir, the unbleached.

Q. You treated that with 10 parts per million?

A. Per million.

Q. And you have a result of zero-point 66? A. Point, 66.

Q. 1.92 reduced to .66 that is what it means. What substance or chemical or element was there to reduce the lysin which you say it so essential?

A. The nitrous acid after it is converted into nitric acid.

532 Q. Now, as to the effect upon people of different age, capacity and strength, a given amount of this nitrite reacting material found in the bleached flour bread, what can you say about that. Would the effect be the same in degree or different?

A. It is a difficult question to answer. Supposing you take two people; supposing one person was in good health, the other person was not in good health. It is quite possible the person that is not in good health will have a gastric secretion which is lessened in amount, in which the pepsin is not as vigorous as it is in the healthy individual. Now, inasmuch as there is a deleterious action of the nitrous acid on the enzymes, I would expect that a person who is not in good health would suffer more than a person in good health. The next point would be if a child could eat the same amount of bread as an adult, if there were nitrites present such a child would suffer more than an adult—I say, if a child could eat the same amount of bread.

Q. What is your opinion as to whether or not the adding of this nitrite reacting material to flour and bread made from flour in very small, minute quantities is injurious or may be injurious to the health of consumers?

A. Now everyone that is here has some nitrite in his mouth. Now, what happens is that this nitrite in our mouth we are accustomed to. That means, we are constantly swallowing a certain amount of nitrite every day and the body has got accustomed to deal with this amount of nitrite. That is, our body is compensated for that amount of nitrite. Now, when I say we are compensated for it, it means the body, as we grow older has gradually got accustomed to deal with the amount of nitrite which is normally present in the mouth; but that nitrite which is not normally present in the mouth we have to compensate for; that means we are spending energy to undo the effect of that nitrite, and therefore I should say, inasmuch as we have to compensate already, don't let us introduce any more.

We are doing already work in compensating for that
533 amount of nitrite in the mouth and therefore, I say don't add any more nitrite to any food whatsoever, whether it be flour or bacon or anything else.

Q. And the tendency is what, is it in favor of well being or injury to health of the adding of nitrites to foods made from flour?

A. I think it is distinctly injurious to health.

Cross Examination

By Mr. Elliott:

Q. Doctor, I notice in your testimony, you have frequently, I think referred to nitrous acid where we have been using the term nitrogen peroxide. Do you make any distinction between those two gases?

A. If you like to make a distinction, there is none.

Q. I simply ask you if you make a distinction?

A. No, if you have a dry gas—You say, of course, you have a dry nitrous oxide, whether you call it N_2O_4 as soon as you have that in contact with water, you have nitrous acid in the water.

Q. That doesn't answer my question. Do you make any distinction between nitrous acid and peroxide nitrogen?

A. No.

Q. What is the formula for nitrous acid? A. HNO_2 .

Q. What is the formula for the peroxide? A. N_2O_4 .

Q. You say that is the same thing?

A. Exactly except one is in a watery solution.

Q. You say nitrogen peroxide is the same thing as nitrous acid.

A. And nitrous acid is a watery solution of NO_2 .

Q. Is there any hydrogen in peroxide nitrogen?

A. No.

Q. Is there any hydrogen in nitrous acid?

A. Naturally, because it is in solution. As soon as it passes into the water the gas becomes a solution. You have the hydrogen taken from the water and unites with nitrous acid to give you HNO_2 .

Q. Has nitrous acid, as such, ever been isolated or located by chemists?

A. Demonstrated? Oh, yes all all you have to do is to take any nitrite and add acid to it and you lead off the nitrous acid into the V-shaped tube, then you get the—

534 Q. Nitrous acid is only known as a solution?

A. Only known in solution.

Q. It is only known to exist by chemists for the reason they can find nitrite?

A. No, it is of a distinctly blue color; free nitrous acid in a watery solution is a distinct blue color.

Q. Nitrous acid gas, as such has not been isolated by chemists; it is not possible? A. Say that again?

Q. Nitrous acid gas has never been found by chemists?

A. Of course it has.

Q. It has?

A. Yes, that is exactly what NO_2 means.

Q. You say nitrous acid gas has been isolated as such by chemists? A. Yes.

Q. It is known otherwise than in solution?

A. I am sorry I don't make myself clear.

Q. A thing that is in solution is not a gas?

A. Most decidedly.

Q. I asked you if nitrous acid gas, as such has ever been isolated and found by any chemist?

A. Yes, Mr. Elliott.

Q. You say it has?

A. Because salt, as soon as you put salt—if I take salt and put the salt,—common table salt, into water, according to.....'s law, it is so I have a gas, which is no longer sodium chloride; that is.....law, and one of the principal basic laws of chemistry; you can't get over that.

Q. I don't ask you to get over anything. I just simply wanted you to straighten out some things here. Perhaps this is unimportant, but you have referred to nitrous acid several times, when we have been referring, as I understand it, to nitro-gen peroxide. I do not know whether the jury understand that or not. You say that peroxide nitrogen has been in certain instances used in bleaching flour. I understood you to refer to it in terms of nitrous acid. Now, I ask you does nitrous acid, as such bleach flour?

A. No, it becomes first converted into nitric acid.

Q. You say nitrous acid, as such will not bleach flour?

A. No, sir.

535 Q. Now, I want to ask you what knowledge you have of this electrical process of bleaching flour, what has been your experience with it?

A. I have had none whatsoever. I have never seen the Alsop machine.

Q. Therefore, you have never analyzed the gas; you don't know its dilution or anything of that kind?

A. No, I do not.

Q. You don't know, as to any gas you may have used in bleaching, how it would compare in dilution or concentration with any gas that might be used with this Alsop machine, do you?

A. No, excepting I have had some materials for comparison, that is all.

Q. You say you never examined the Alsop machine, never saw it?

A. No, sir.

Q. Then you can not know what the gas is? A. No.

Q. Now, then, as to the flour in this suit, have you done anything with that flour?

A. What I did with that flour since I came here. I was summoned here by telegram; I went to Mr. Winslow and asked him to procure for me a flour which in every respect was similar to that flour in this case.

Q. That may be, but just answer my question first; you can tell these things afterwards: Have you made any experiments with the flour in this suit?

A. I have and found its digestibility only half that of normal flour.

Q. What other things happened—Where did you get this flour that was seized?

A. This flour that was seized was given me by Mr. Winslow, and it was sealed up.

Q. It was the same flour? A. It was the same flour.

Mr. Scarritt:

Q. He has not said, it was this flour?

The Witness: I understand it is the same.

By The Court:

Q. The flour that was given to you, that you analyzed was given to you by Mr. Winslow?

A. By Mr. Winslow.

The Court: Who is Mr. Winslow?

A. He is the head of the laboratory:

536 By Mr. Butler: He is an Inspector.

The Court:

Q. Is he a gentleman here representing the Government?

A. Yes, sir.

The Court: It is easy to see whether it is out of this seized flour or not.

Mr. Elliott:

Q. You had some of this flour that was seized, is that it?

A. Yes, sir.

Q. The other flour, you say you compared with that?

A. Mr. Winslow wanted to give me a sample to compare with this flour, and I would not have it, so I sent him out to the mill and he told me the miller gave him flour which was exactly like this flour and I compared the two.

Q. You had this flour and some other flour?

A. Yes, which was sent to me likewise.

Q. It was some other flour? A. Yes.

Q. Now, I understood you to testify that you found no impairment in the starch in flour with such experiments you made? A. None whatever.

Q. Now as to these digestion experiments that you have spoken about, all the flour used, as I understand it was flour that you had bleached by the use of peroxide nitrogen in your laboratory?

A. Some of it, and some of it was sent by the Government.

Q. That which the Court permitted you to testify to, that was all bleached in your laboratory? A. Yes.

Q. Now, I will ask you as to that flour that you bleached, Doctor, what change if any was made in the color of the flour?

A. Well, the first thing I noticed in using minute quantities, say 1 per million, was that the flour looked much whiter.

Q. Was that that white flour that you used in making your digestion experiments with?

A. Partly, and partly flour which had not been bleached.

Q. I mean as to the bleached flour? A. Yes.

537 Q. You used a flour that had been rendered lighter in color by peroxide nitrogen? A. Yes.

Q. Now, if I understood you, you said that you washed out the gluten from that Golden Drop flour bleached and unbleached and you were unable, as I understood it, to detect any difference in the color of the gluten, is that correct?

A. No, I would not go as far as that, by simply looking at it, after I had squeezed it out and put it on the table I got two lumps to look at, the same flour a slight difference in color.

Q. I will ask you if you did not testify you did not detect any difference in color of the gluten from the bleached and the unbleached, isn't that what you stated?

A. If I said it, I did not mean to because what I referred to, there was two lumps here which were indistinguishable from one another as far as size and consistency was concerned.

Q. I was asking you as to color?

A. I found a distinct lighter color in the material I have bleached.

Q. The bleached gluten was lighter than the other in color, was it. A. Yes, sir.

Q. What did you mean, then otherwise it was indistinguishable?

A. I mean I had got two lumps of the same size and same consistency, but not the same elastic stress.

Q. They were distinguishable as to color, were they?

A. Yes, that is the color—I was not thinking about color when I made that statement.

Q. In what respect were they indistinguishable?

A. As far as bulk was concerned. You see, I took exactly the same weight of flour on every occasion; I treated it with the same amount of water; treated it to the same amount of washing; I took it exactly the same number of times through the sausage machine until what I had in that was as much in one hand as the other.

Q. And one lighter than the other? A. Yes.

538 Q. And that was the gluten from the bleached flour?

A. Yes, sir.

Q. Gluten is protein isn't it? A. Yes.

Q. I want to ask you what is the action of peroxide nitrogen on protein in matter; what change does it make in its color?

A. Everything will depend on the amount you add. If you add a very small amount, it will make no change.

Q. This was white?

A. Well, that is due to the fat; you see you can't get rid of the fat.

Q. What is the action of peroxide nitrogen on protein matter, will it make it yellow?

A. Yes, if you have enough.

Q. I find that you in your book on chemistry of proteids so stated, and I will give you the page number?

A. I don't know what I have stated there.

Q. That the action of peroxide nitrogen on nitrous acid on protein matter is to turn it yellow?

A. Yes, so I have, and I still believe it is so. It is quite correct. I have said it, and it is right too.

Q. I think it is on page 236 of Dr. Mann's book of the chemistry of proteids:

The Court: Here is the book, if you want it. That is your book is it (Handing witness book). A. Yes sir.

Q. Well, would this illustrate it: You have been talking about xanthoproteic action— A. Yes.

Q. (Reading) "Xanthoprotein and other nitro-substitution products are acid in character and possess a yellow color which on adding a fixed alkali, is converted into a reddish brown."

—That will illustrate it, will it? A. Yes.

Q. Is it not a fact that irrespective of bleaching that two flours from different mills will show differences in the rate of digestibility, of the rate of digestion.

A. Yes, particularly if you are comparing whole flour with patent flour.

Q. May not two patent flours—alleged patent flours, or patent flours that are called "patent flours" from different mills show difference in the rate of digestibility?

539 A. Oh, certainly.

Q. I want to ask you what kind of nitric acid you poured on that bread, was it concentrated nitric acid?

A. Yes, that was concentrated.

Q. Now, the action of nitric acid is distinctly different as to the possibilities of compounds being formed, whether it is dilute or otherwise, is it not?

A. Yes, sir, and the length of time you must take the time factor into consideration.

Q. Let me use an illustration I used with Dr. Jones this morning; if you use dilute nitric acid and added benzene it does not produce any compounds at all, does it? A. No.

Q. If you use a still stronger nitric acid it may produce or will produce a substance called nitrite benzene?

A. Yes.

Q. Then if you go higher, and use a concentrate you can get a substance known as nitrite benzene?

A. Yes.

Q. So two chemical substances may be formed according to the concentration, and then by the dilution no compound at all, is that correct? A. Oh, yes.

Q. I want to ask you in your digestive work, with these tubes you have talked about, if you estimated the water contents of the gluten in each case?

A. No, but what I did is to treat one solid exactly against the other.

Q. Just tell me now, did you estimate the water contents of each set of gluten, the bleached and unbleached?

A. No, I did not.

Q. Isn't it a fact water may materially affect the rate of digestion?

A. Certainly but I don't know which one there was more water in, whether there was more in one than in the other.

Q. You did not estimate it? A. No.

Q. I want to ask you what is the usual way of estimating the rate of digestion is it not by taking the digestive material and estimating the nitrogen in it?

A. There are several ways in which digestive experiments are done; that particular way which I adopted is a modification of Metts' principle.

Q. What is the more usual way of making a determination as to the relative digestibility between two substances: isn't it done by determining the amount of nitrogen in the two cases?

A. No, the usual way in every well conducted laboratory is to use Metts' method because it is deemed most accurate. You see, what you have to do in the other case is to introduce,—

Q. One moment, Doctor—

Mr. Butler: Let him continue:

Mr. Elliott:

Q. Now, I won't put this in scientific language. This was handed up to me. Is it not the most usual way by scientists that is to have used a definite amount of gluten, then determine the amount of digestion by estimating in the filtrate the nitrogen and then to figure out the gluten? Isn't that the ordinary way of doing it?

A. You may do it that way.

Q. Isn't that the ordinary way? A. Not with me.

Q. I say with scientists. Do you know that is the ordinary way of doing that? A. I assume I am not a scientist.

Q. Not at all, I beg pardon. With other scientists?

A. Well—

Q. Isn't that the common way given in the books known to all men who deal with the digestion?

A. True, but then I am perfectly well informed with that method and I am using it every day, but the difficulty comes to be if you want to compare two things, you see it is exceedingly—practically impossible to use that method for that reason—

Q. Why?

A. Supposing I have a lump of this size a big piece or thing I want to digest; The digestion does not take place from absorption, but takes place right through the whole thing. I have got the enzymes penetrating the whole thing.

Q. It takes place in the whole thing in those tubes you used?

A. No, that is where my sharp line of demarkation comes in.

Q. It don't go into the interior at all?

A. Only a very small part; don't you see, from having protection here on all sides, and having only one surface
541 free, having this surface lowermost, you see I handle this tube in that fashion (illustrating) so what is digested drops off and this remains unaffected from any side except here.

Q. That is, you mean it may drop out?

A. Must, that is the whole principle of digestion making it insoluble, otherwise there would not be any reason for the experiment.

Q. You say it is impossible to make a determination; why is it impossible?

A. Suppose those breads, here, the thing which is being digested, the different radicals in the protein molecules digest in a distinct way, so it is quite possible for me to have a certain amount of digestion going on here which is not indicated at all by my nitrogen determination. You see, if you digest a big molecule, likely it will break it up into two portions and these are divided again and again and so, only ultimately, until your digestion is completed, do you get any comparable figure.

Q. That is the reason you don't use it?

A. If you go to any laboratory where accurate determinations are made, for example of enzymic action or any other, we use the Mett's method.

Q. Notwithstanding all flattering allusions to my chemical knowledge, I give you my word I never saw a digestive experiment in my life and I do not know a thing about it except what these gentlemen tell me. Now, I am informed that the determination of the nitrogen in the filtrate is the one reliable way of ascertaining accurately the rate of digestion, now, do you agree with that? A. It is one way.

Q. Then, I say they tell me it is absolutely the only accurate way of determining it, do you agree with that?

A. No, sir.

Q. Now, I understood in your testimony one circumstance, a suggestion of experiments the results were not unfavorable to bleached flour—what was there to that?

A. I just want to call for the question, because you see I can't answer—(Question read to witness) One sample was sent by the Government, I can't testify on that.

Q. What was the first digestive fluid you used, what did you name it.

542 A. The first I used was pepsin, the second I used was trypsin.

Q. The other was pancreatic?

A. Yes, may I have my book to give the exact figures to Mr. Elliott?

Q. I don't want the figures, unless you want to give them to me, I have not asked you for any figures, Doctor?

A. I would be glad to give them to you. In Number "9", bleached to the extent of 0.16, according to Government statistics the pancreatic digestion was worse in the unbleached than it was in the bleached.

Q. That is the condition you alluded to in the pancreatic action? A. Yes.

Q. Do you agree with Dr. Shepard that any figure you may get in nitrogen determinations after your digestion would be within the limits of experimental error?

A. What do you mean, I don't understand that.

Q. Suppose you take an unbleached flour or the gluten made from it, whatever that digested, and the same flour bleached and you made your digestion experiments, then you tried to discover whether one had digested more than the other; I understood Dr. Shepard to say that his figures that he gave were all within the limits of error. Do you agree with that, that the amount is so small you could not possibly distinguish one from the other?

A. I testified to the difference being 50 per cent.

Q. You did not make a nitrogenic determination, did you?

A. No.

Q. I am talking about nitrogenic determinations?

A. I think that is impossible with a difference of 50 per cent in the rate of digestion. I don't see how the nitrogen figures could agree.

Q. I will ask you if it isn't a fact that nitric acid and hydrochloric acid are sometimes given by physicians to aid digestion? A. Oh, yes.

Q. Take a man, Doctor, who had eaten we will say a quart of food, an ordinary dinner estimated at a quart in volume, how long would you say it would take the normal human being to digest that amount?

A. Honestly, Mr. Elliott I can't answer that question.
543 He might have eaten a quart of lobster, or a quart of potatoes—

Q. I did not mean a catch question. I have been informed by the books, an ordinary dinner of meat and vegetables—

A. (interrupting) From six to eight hours.

Q. The stomach is supposed to be rid of all of it in seven hours? A. I would say from six to eight.

Q. Now, as I understand it, you make no distinction between nitrites in their effect or alleged effect on the human economy whether they are taken in by the air, or water or in any food we may eat or if it be the case, in bread made from bleached flour, is that correct?

A. No, I did not make that statement.

Q. I mean so far as nitrite is concerned, didn't you tell Mr. Butler in your opinion the effect would be the same only it might differ in degree?

A. True, but then you assume I might breathe it in; in one case swallow it in, the other, if I breathe it in, I know I die of pneumonia.

Q. Are nitrites in the air?

A. Not in the free open country, it is only in manufacturing districts and in volcanoes and immediately after or during a thunder storm.

Q. Let us go out in the open, and out in the country, take a bright sunshiny day do you say there is no nitrous acid in the air? A. Not if you do not smoke.

Q. I did not say anything about smoking, I am talking about the air? A. No, absolutely no trace.

Q. You say there is not a trace of nitrous acid in the air?

A. One can't demonstrate it.

Q. At any rate, that is your statement?

A. Yes, that is my statement.

Q. We will eliminate the breathing now as to taking nitrous acid or nitrites into the human economy by eating them in any way; just assume it is in smoked ham and stale vegetables, if it be the case, and other things, and in the saliva—

544 I want to include that—would the action of those nitrites be just the same as the action of any nitrites you get from eating bread made from bleached flour?

A. Exactly the same.

Q. One is harmful and the other is harmful?

A. Yes, no difference.

Q. Now, I understood you to make some statements in answer to Mr. Butler about the effect of over-treatment by this Alsop process; as a matter of fact you never saw this Alsop process operated, did you? A. No, sir.

By Mr. Butler: My question was the gas employed by the Alsop process.

Q. You never saw the Alsop machine work; you testified to that? A. No, sir.

Q. You have no knowledge then of any over-treatment, so-called, by this Alsop process?

A. No, excepting the samples submitted to me by the Government.

Q. You have no knowledge,—I think you stated to Mr. Butler, if you over-treated by the Alsop process you would turn the flour yellow didn't you? A. Yes.

Q. You have no knowledge of any flour having been treated by this Alsop process that was ever turned yellow, do you?

A. Not personally, I have heard about it.

Q. And you have no knowledge as to whether it is possible in any reasonable time to turn flour yellow by that machine?

A. I haven't any doubt, whatsoever but that is done.

Q. Of your own knowledge?

A. I mean, talking as a scientist.

Q. But you have no knowledge of it?

A. No, I have no knowledge.

Q. Now, as to these nitrites in the saliva, do they vary in amount with different individuals? A. Yes, sir.

Q. And different times of day?

A. Yes, mostly in the morning.

Q. Have you ever made any estimate of the range of variation? A. No, I can't say that I have.

545 Q. Have you ever made any estimate as to the fluctuating amounts—between what limits they would be contained in the saliva?

A. No, I have discussed the matter with Dr. Jones, that is all.

Q. Can you give me the maximum amount of nitrite you ever found in the mouth? A. No, I could not.

Q. You couldn't give any figure on that?

A. No, I prefer not to.

Q. Can you give any figure of nitrite you found in the saliva, the most that you can think of that you have found?

A. You see—the reason I don't care to answer that question—You see, as soon as I put out my saliva, everything will depend upon the amount of protein cells which were carried to—cells which come from the tongue and from the buccal surface and so on. I don't like to make any statement—If you do not wash your mouth, you have many; if you wash your mouth you have not so many; you have fewer before dinner than after dinner.

Q. I understand, you do not care to commit yourself?

A. I might make a statement that I have taken saliva early in the morning and compared it with bleached flour with 1 per million, and I found the saliva gave a stronger reaction than the flour.

Q. Now, have you ever made a quantitative determination of nitrites in the saliva? A. No, sir, I have not.

Q. But it is within your knowledge, the amount of these nitrites will vary in the saliva in different individuals, and even in the same individuals during the course of the day?

A. Yes, sir.

Q. Now, I just have one question I think I want to ask you about this Exhibit "11". Do I understand that that is intended to represent the difference in the—

A. (Interrupting) The rate—

Q. No, in the appearance of the cell after the plant had this gluten put on it? A. Yes, after it begins to digest.

Q. What did you do, did you take a photograph of that cell, or how did you do it? A. No, sir.

A. Just what did you do, in plain language?

A. Yes, I am going to give it. I magnified it 1000
546 diameters up to about here, you see this is nearly two inches, then I put the slide upon the stage of the microscope, and I have on the top of the microscope a special mirror which allows me to see the paper, with my hand on the paper, and I see the image through the microscope and I see my hand at the same time and I draw the outline of this cell, and draw the outline of this then I have a diagram about two inches long. I put this diagram into a projection lantern, and project it against the screen to get a view sufficiently large to be seen at a distance. I do not know the exact magnification; two inches is about 1000 diameters.

Q. I thank you. That is very clear. What I am trying to get at is, did you put the gluten from the bleached flour on this Drosera, this plant and then make those illustrations of the action, after that?

A. Yes, because I have to take it what we call it, through the paraffin process.

Q. It is immaterial to my question how you did it. I simply want to know if that is the difference in the action or appearance of this cell after you put the gluten on this plant?

A. Yes.

Q. I want to ask you if you made a chart of a cell that had the unbleached gluten?

A. No, I used this as a standard.

By Mr. Butler: The difference in time, was his comparison according to his direct examination.

Q. Just let me know, did you make a chart of this, similar to this, illustrating the action when you put gluten from the unbleached flour on it?

A. This presents both; this is the maximum change which is it possible to get. (Indicating on Exhibit No. 11.)

Mr. Butler: You might as well not talk at all, unless you indicate what you point to.

The Witness: "C" indicates the maximum change which it is possible to produce. Now, these are individual cells.

Mr. Elliott:

Q. Now, you say "C" represents what?

A. The maximum change that it is possible to produce in such cell's nucleus after a certain time.

547 Q. Then, where is the illustration corresponding to "C" that would show the effect of the gluten from unbleached flour?

A. Both the bleached and unbleached flour will produce this change; it takes a different length of time. In one case this is 30 hours; the other case here this is 20 hours; that is what I wanted to say. You get the same appearance; there is no difference in the appearance; it is merely a question of time.

Q. That simply illustrates the same appearance?

A. Yes, sir, just a difference in the time.

Q. That illustrates the process of digestion in this plant?

A. A slowing of digestion.

(Witness excused.)

Dr. James H. Shepard, a witness recalled on behalf of the government, testified further as follows:

Direct Examination

By Mr. Butler:

Q. Some days ago you called my attention to the testimony referred to by Mr. Elliott just now in the cross-examination of Dr. Mann, wherein he expressed his understanding of your answer to the effect that the results of your experiments to determine the digestibility were within experimental error; how did you intend to be understood?

Mr. Elliott: We will have to object to that.

By Mr. Butler: Dr. Shepard has told me he has misspoken himself,—some days ago he asked me to recall him.

By Mr. Scarritt: If he wants to make an explanation; if he wants to take back and swear differently, let him come back, but I object to Mr. Butler speaking for the witness.

By Mr. Butler: It is perfectly proper with a witness of this kind.

The Court: A witness always has the right to make any corrections in his testimony. If there is anything you want
548 to correct, Dr. Shepard?

The Witness: As I recollect, Mr. Elliott was asking me concerning the determination of gains and losses both in amido nitrogen, and in digestion, and as I understood the question, were my results safe that is considering the limits of error. That is, I have found, we will say a gain or loss in digestion, or loss or gain in quantity of amid nitrogen, and I intended to assure Mr. Elliott that my results were good, that they far exceeded experimental error. That is what I meant, and that

my conclusions were safe within the limits of experimental error:

By Mr. Smith: Read that last answer.

(Answer of the witness read by Stenographer)

The Witness: "Outside" the limits.

By Mr. Elliott:

Q. Do you want to change any figures you gave?

A. No, the figures will show for themselves.

(Witness excused)

Morning Session.

Kansas City, Mo., Wednesday, June 8, 1910.

Court [not] pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

Mr. Butler: I intended to ask Dr. Mann a couple of questions that I ought to have him in direct examination. I desire to recall him.

The Court: Very well.

549 A. C. Leflang, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. What is your name? A. A. C. Leflang.

Q. You are the manager of the mill that milled the flour that was seized in this case? A. Yes, sir.

Q. Mr. Tucker who testified [as] the miller under you?

A. Yes, sir.

Q. When this flour was seized, according to your answer, your mill furnished to Mr. Terry, the purchaser of the seized flour, other flour in its place? A. Yes, sir.

Q. Was that flour so furnished bleached or unbleached?

A. Mr. Terry requested that we send him this time a car of unbleached flour, and we sent it unbleached.

Q. That flour was unbleached? A. Yes, sir.

Q. Was it the same kind of flour as the flour that was seized? A. It was.

Q. And made from the same kind of wheat?

A. To our best knowledge, yes, sir.

By the Court:

Q. By the same processes? A. Yes, sir.

By Mr. Butler:

Q. Milled in the same way?

A. Milled in the same way.

Q. But it was not subjected to the bleaching?

A. Yes, sir.

By the Court:

Q. Yes, or no. A. Yes,—no, it was not.

Q. Not bleached? A. Not bleached.

By Mr. Butler:

Q. I call your attention to a sack of flour—a sack containing some flour, it has been opened, which is marked Government's Exhibit 12, and ask you if the flour which you sent to Mr. Terry in place of the flour that was seized, was put up in sacks of the kind marked Exhibit 12? A. Yes, sir.

The Court: Terry is the grocer down at Green Castle.

By Mr. Butler:

Q. And the flour was branded in a different way, was it not? A. Yes, sir.

550 Q. The flour which was not bleached and which was sent to Mr. Terry was branded "Purity, hard wheat finish patent," also it says "Highest Patent" on it, and Lexington Mill & Elevator Company?

A. Yes, sir.

Q. Lexington, Nebraska, and contained twenty-four pound sacks, were they all twenty-four pound sacks? A. No.

Q. Some of each size, some twenty-four?

A. Most of it, I think, was forty-eight; I don't remember shipping any twenty-fours to him, we possibly did.

Q. (By Mr. Smith) What was that answer?

A. I say it was practically all in forty-eights, there may have been a few twenty-fours, sacks. I have no record of that.

Q. And all of the flour that was seized was put up and labeled and branded as this sack marked Government's Exhibit 13? A. It was.

Q. That is all.

Mr. Smith: No cross-examination.

B. C. Winslow, called as a witness on the part of the libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Winslow, your initials are? A. B. C.

Q. And you are one of the inspectors in the Bureau of Chemistry of the Department of Agriculture? A. I am.

Q. Did you at the request of the United States marshal and in conformity with the order of court go to Castle in Missouri and bring here some of the flour that was seized?

A. I did.

Q. You left last Saturday and returned yesterday?

A. Sunday morning.

Q. Returned Monday?

A. Returned Monday night.

Q. You brought how many sacks of that seizure?

A. Two sacks, two forty-eight pound sacks?

Q. Is this Government's Exhibit 13 one of them.

A. It is.

551 Q. Did you also bring from Mr. Terry the sack of flour which is here marked Government's Exhibit 12?

A. I did.

Q. Since the sacks were brought here some flour has been taken out of each in the laboratory in this building, the Government Building?

A. Out of the "Purity", but not of the other sack.

Q. The other sack has not been opened, is that it?

A. That is true.

Q. The "Purity" is Government's Exhibit 12. That will be all.

Cross-Examination

By Mr. Smith:

Q. One question, when you went to Castle where did you get the sack, forty-eight pound sack? A. XXXXX Cream.

Q. Yes, sir.

A. From B. O. Terry who has this flour in his custody up there.

Q. I see. Well, did you open it before you brought it?

A. No, sir.

Q. Did you open any of the sacks down there?

A. No, sir.

Q. Did you examine any of the other sacks that were there?

A. From the outside I did.

Q. Well, what examination did you make outside?

A. I looked over the sacks in the room, it was all in proper shape, that is it was being properly cared for.

Q. And did you make any examination of any flours there.

A. I did not.

Q. Or taste any of them. A. Not there.

Q. Well, I mean speaking of what you did at Castle?

A. No, I did not.

Q. You did not examine any of the flour or any sacks or obtain any of them? A. I did not.

Q. Just took out one of the sacks and brought it?

A. Yes, sir.

Q. Sir? A. Two of them.

Q. Took out two of the sacks and brought them?

A. Yes, sir.

Q. Without making any examination of all of them there?

A. Correct.

552 Q. Then the small sack you got from Mr. Terry's store?

A. I did.

Redirect Examination

By Mr. Butler:

Q. Just a question. Of this flour that was seized, did you since the adjournment of court last night, deliver some [of] it to Professor Mann of the other bag, this bag you told me was not opened? A. I did.

Q. You did out of the other bag that was brought from there, the very flour that was seized?

A. The same thing.

Q. And some of this "Purity" out of this sack that is here in court? A. Yes, sir.

Dr. Gustave Mann, recalled as a witness on the part of libelant, further testified as follows:

Cross-Examination

By Mr. Elliott:

Q. I would like to ask you, Doctor, in these digestion experiments where you, as understand it, cut the tubes in two, the glass tubes sawed the glass tubes off with gluten in it?

A. Yes, sir.

Q. Did you weigh each one of these tubes?

A. No, that is immaterial whether the tube is one inch longer or whether the tube is ten inches.

Q. You say that would be immaterial.

A. Absolutely immaterial.

Q. Now, the impairment of digestibility you speak of refers to flours and to gluten which you extracted from flours, does it not? A. Yes, sir.

Q. Why didn't you test, may I ask you, the relative digestibility of bread made from bleached and unbleached flours?

A. Well, I don't quite understand.

553 Q. I say your digestion work referred only to flour and to gluten extracted from the flour? A. Yes, sir.

Q. Didn't refer to the bread? A. Yes, sir.

Q. It did? A. Yes, sir.

Q. Oh, you made a digestion of bread?

A. No, sir, I did not.

Q. Now, I ask you why didn't you determine the relative digestibility of the bread made from these flours?

A. Because the thing which is of real importance to us in the bread is the gluten.

Q. Now, no one eats raw gluten, do they?

A. No, sir, that is the reason I cooked it before I tried my test.

Q. And gluten separated from starch is practically indigestible, isn't it? A. Oh, not at all.

Q. You think not?

A. Not at all, sir, oh no, I have got some proofs of that.

Q. Now, I wish you would describe in detail the method including apparatus you used in preparing nitrogen peroxide for bleaching this flour.

A. Well, I have in my laboratory a certain stand about this high (indicating) and in that stand are three inverted bottles, and these three bottles are connected with one another. Now, in connection with these three bottles I have got a vessel about this high (indicating) so as to be able to regulate the amount of pressure in these different bottles of the gas which I liberate. Now, when I liberate my gas I get from it the action of nitric acid on starch, that is the chief method which I use, and then this gas which I get in this way liberated consisting of fumes, I then led through water so as to combine any free nitric acid which might be there, and then wash it in this way. I put it into a bottle, and having put it into the bottle, I got there a certain amount of pressure, atmospheric pressure, and then from this bottle I take in one case, say two or four, six, as the case may be, cubic centimeters, and added with each cubic centimeter 2.056 grams by weight,

the cubic centimeter is equal to two milligrams, and
554 therefore half a cubic centimeter is equal to one milligram per kilo weight of flour.

Q. Now, just let me get that once more. First you put the nitric acid on starch, as I understand? A. Yes, sir.

Q. And generate a gas? A. Yes.

Q. Now, you conduct that gas through water?

A. Yes, sir.

Q. And I believe we have had it testified here that then you would have this nitrous acid and nitric acid in the water, would you not? A. Yes, sir.

Q. Now, then, what did you do?

A. Well, the gas after it passed through the water is washed; that means the water can only hold a certain amount of the gas in solution, and the rest of the gas remains gas and passes through.

Q. Goes on over? A. Goes on over.

Q. Into this large bottle you speak of?

A. Yes, sir, you see those three bottles they are all connected up with one another, and when I start generating the gas in the first bottle, that gradually displaces the air, and will go in the second bottle and from the second bottle into

the third bottle, and if I let the stream run long I displace all the air; but this is only one way. May I add the other way in which I did it.

Q. Yes, sir.

A. That is the one way I did it, and the other way in which I did it was to take equal amounts of nitrite, such as sodium nitrite, and an equivalent amount in some cases, of a strong acid, such as hydrochloric acid, in other cases of a weak acid such as acetic acid, that means just enough of hydrochlorid, one part of hydrochlorid to be displaced practically by one molecule of soda nitrite; so I get one molecule of soda nitrite and one molecule of nitrous acid; and this is the method which I adopted in all my very extensive bleaching.

Q. Now, how many times—first let me ask you, these are, I presume well known laboratory methods, are they, for generating peroxide of nitrogen? A. Yes, sir I think so.

Q. How many times did you try the experiment of
555 washing out the gluten from both bleached and unbleached flour?

A. I don't know whether you mean how often I did it each time I did it, or how often I did it altogether?

Q. No, how often did you do it?

A. Well, at least fifty or sixty times, I mean taking it altogether, not counting the—let me see—oh, it must be more than that; it must be more than that.

Q. Then for the purpose of any particular experiment how often did you do it?

A. Well, from six to ten times; sometimes I did it six times; sometimes I did it ten times, because a great deal depends on the ease with which the starch will pass from different flours; I don't know why it should be, but sometimes the starch seems to adhere a great deal more firmly to the gluten than it does at other times, but never less than six times.

Q. How did you apply one part per million of nitrogen peroxide to the flour; how did you determine that?

A. Well, I took a kilo of flour, and I took half a cubic centimeter of the gas and atmospheric pressure.

Q. That would give you—

A. That would give me one per million of NO₂.

Q. I am very much obliged to you, Doctor; they were just some details these gentlemen wanted to have, that is all.

Redirect Examination

By Mr. Butler:

Q. Referring to the experiments, the flour with which you experimented, the "Golden Drop" flour; you told us that you took some of it and bleached it by two and a half parts of nitrogen peroxide gas per million parts? A. Yes, sir.

Q. And then tested its digestibility, the digestibility of the gluten from it with the digestibility of the gluten from the unbleached and that that was done a couple of days, as I recall your testimony, after the bleaching? A. Yes, sir.

Q. Now, did you again on the same flour, after the
556 lapse of some weeks, test the digestibility of the bleached flour and unbleached flour?

A. As near as I can recollect—I have not got the notes here—I repeated the experiment about one month later, and about seven weeks later.

Q. Yes. Now, the experiment that you repeated one month after the bleaching, what did you find—more digestibility?

A. I found taking the time of digestion as a factor, that the digestion of the bleached flour took longer; or put it differently, the same amount which was digested in the first instance, in a given time, would require more time the second time.

Q. Yes, sir, that is it had grown more indigestible as time went on.

A. It had grown more indigestible as time went on.

Q. That is the bleached flour?

A. That is the bleached flour.

Q. Now, at a later period, seven or eight weeks?

A. The difference was still more marked.

Q. The difference was still more marked?

A. After I made it, I did this experiment because I could not understand what Halliburton in his testimony said, that different samples of flour, bleached to the same extent, giving different reactions; that is the reason I made that experiment.

Q. Now, since the court adjourned last night have you undertaken any test of the digestibility of gluten found in the flour seized which Mr. Winslow testified that he gave you in one of the sacks that he just brought up from the place of storage, as compared with this flour known as "Purity" flour which he also gave you? A. Yes, sir.

Q. And at the adjournment of court you set such a test going, did you? A. Yes, sir, and I worked all night at it.

Q. Yes, worked all night, and have you the thing there?

A. I brought the bottle down just out of the incubator.

Q. Is this it? A. Yes, sir.

Q. Now, will you tell the jury which is digesting faster?

A. In this bottle there are two tubes, and one tube has a
557 string around it, and that tube which has the string it is the bleached flour, and the one which has not the string around it is the unbleached flour and they are both held up here by these two threads; the per cent of pepsin solution which I used, I have to use a very strong solution because the time was very short. I took five grams of the scale pepsin,

five grams of scale pepsin; I took in 300 c. c. 300 cubic centimeters of water; I added to the 300 cubic centimeters of water 38 drops of pure hydro-chloric acid; then I put these tube tests into the incubator at a temperature of between 39 and 40 degrees Centigrade, and left it there till this morning, when I overslept myself, I am sorry to say, and brought it down.

Q. And you say there is a difference?

A. I should say of fifty per cent.

Q. Which is digesting the faster?

A. The unbleached is digesting the faster.

Q. And there is a difference in the rate of digestion of about fifty per cent, you say?

A. I should say so; I leave it to Mr. Elliott; they have both got strings so as to keep the tubes suspended from the top.

By Mr. Elliott:

Q. Which do you say is the bleached?

A. Here you see this here is the bleached with the string around it, and the unbleached is that one. I made the gluten, I dried the amount of water in it, but I have not been able to weigh it, having overslept myself.

Q. Did you treat both the flour that was seized and this package flour sent by the miller in substitution of the flour seized, and are these experiments exactly alike?

A. Absolutely. I had them in two basins, I squeezed them the same length of time, and washed them in hydrant water the same length of time and in distilled water the same length; I may say after I could get all the gluten I could in every case, why, then, I weighed them; when I weighed them I found that the amount of gluten which I got from the bleached flour was heavier than the amount of gluten I got from the other; so I weighed out certain portions and
558 let them dry all night, but I don't have their weight.

Q. Did you take the same amount of flour?

A. Absolutely.

Q. And the same amount of gluten out of the bleached flour?

A. Well, I would not put it that way, I said the gluten weighed more.

Q. Oh, yes.

A. It may have taken up more water, you see, but I don't know whether—

Q. It was not as dry?

A. No, I simply took every possible precaution, I found when I weighed the two together that the flour from the bleached weighed more.

Redirect Examination.

By Mr. Elliott:

Q. Doctor, I would like to ask you if, in your judgment, there isn't some starch in that gluten?

A. Well, if there is starch, according to my way of having prepared it, Mr. Elliott, I should say there is as much starch to my mind as in the other; I went about it deliberately, squeezing it, till eleven o'clock last night, getting as much of the starch out of it as possible.

Q. I haven't the slightest doubt but what you did the best you could.

A. At best there is a certain amount of starch, you see it would take over a day to take all the starch out, and I could not [possible] do it.

Q. I am simply seeking to get some details, that is all.

A. Yes, sir.

Q. Would it be, in your judgment, as high as fifteen per cent of starch? A. I doubt it.

Q. You doubt it? A. I doubt it.

Q. At any rate you did not determine the starch?

A. No, I did not determine the starch.

Q. You did not determine the starch? A. No, sir.

Q. Then the moisture, I understand you, you did not determine, is that correct?

559 A. Well, I squeezed it as much as I could; I have not determined it, but the measurements are upstairs, and if you like I could go and measure them.

Q. No, but you did not determine if the measure contained in each gluten was the same. I do not quite understand your explanation.

A. What I did, Mr. Elliott, is, I took the same weight of the bleached and the same weight of the unbleached gluten after I had prepared it, and put it into the tube, and there is still a great deal upstairs; I took that, put it onto a carefully weighed piece of filter paper, a piece of paper about that size, and spread it out, and wrote on it U. and B., that is unbleached and bleached, and I put it on a hot stove to dry all night, with the view of testing the actual amount of water which had been in these two samples this morning by weight, but I'm sorry I could not do it.

Q. That is the extent of your experiment?

A. Yes, sir, that is the extent of my experiment.

Q. Just one other question, if it should chance that there was a different starch in this, that is, if one had more or less starch than the other, or one had more or less moisture than the other, that might make some difference in the rate of digestion? A. Yes, sir, might make some difference.

Q. That is all sir.

By Mr. Butler:

Q. They were, however, treated as nearly alike as you were able to do? A. Well, I did my best; I could not do more.

Samuel Thruston Ballard, called as a witness on the part of the libelant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

560 Q. Mr. Ballard, what is your first name?

A. My full name is Samuel Thruston Ballard.

Q. And where do you live? A. Louisville, Kentucky.

Q. What is your occupation?

A. In the milling business, flour mill.

Q. What concern are you connected with?

A. Ballard & Ballard Company, Louisville, Kentucky.

Q. Is it a partnership?

A. No, a corporation, but my brother and I own between us all the stock, each of us owning half.

Q. How long have you been in the milling business?

A. I went into the milling business in the summer of 1880—thirty years ago.

Q. And have you been engaged in the milling business ever since? A. Ever since.

Q. At Louisville? A. Louisville, Kentucky, yes, sir.

Q. What size mill have you?

A. We have a flour mill that makes under ordinary conditions twenty-five hundred barrels a day; we have sometimes, if trade conditions are such that we have a demand for more flour, we have run as high as thirty-five hundred and thirty-six hundred barrels of flour a day.

Q. Do you belong to the Millers' Association—organization?

A. Yes, sir, we belonged primarily to what we call is the Southeast Millers' Association, which is the millers along the Ohio river, and south east of the Ohio river; and we belong to the Ohio Millers' Association, and we belong to the General National Millers' Association, Millers' National Federation, I think it is called.

Q. Have you visited other mills?

A. Yes, sir, I visited a great many mills in my life.

Q. Where?

A. Well, the mill that I have gone to perhaps more is a mill at Seymour, Indiana, which is about sixty miles from Louisville; I visited the mills in Nashville, in Chattanooga, and in Knoxville and St. Louis; I was out here five or six years ago to a millers' banquet, and I went through some mills here. I have been through some of the mills in Min-

neapolis. Two weeks ago I was in a mill in Toledo, the
561 next morning after and in Fostoria, the Harder Milling
Company; and the truth is I love to go in mills and
wherever I go, I am fond of the millers, that is, we are good
friends and I take a great pleasure in going through the flour
mills wherever I am, and without aiming to pry into their
business I nearly always see something that I think is a benefit
to us or something that we can adopt, and I very frankly say
to the miller, "This is a good point," and he says "You can
adopt that."

Counsel for claimant objected.

The Court: I don't see any point to this.

Witness: I am merely saying I like to go into mills.

Q. Have you become familiar with millers, millers
generally?

A. Yes, sir; I am pretty familiar with the millers of a
great many mills.

Q. Over the whole country?

A. Over the country generally.

Q. And with principles of treating flour and bleaching
flour after the milling process has been completed?

A. Well, I am very familiar, of course, with the Alsop
also.

Q. How long have you been familiar with the Alsop
process?

A. We were one of the first mills to adopt the Alsop process,
and I think that was in 1904 that we adopted that process.

Q. Are you a stockholder in the Alsop Bleacher Company?

A. Yes, sir, our firm is a stockholder, I think it is the
American Milling and Purifying Company, it is called, since
consolidated with Alsop.

Q. What other processes have you also observed for bleach-
ing flour?

A. Well, I have seen the so-called Williams process in
operation; I have seen a process that Dr. Wisner invented or
developed.

Q. What is the name of that?

A. I forget the name of it, what it is called.

Q. Nitrocele chloride? A. Nitrocele chloride.

562 Mr. Butler: Chloride or chlorine?

Judge Helm: Chloride.

Witness: Then I saw a mill at Nashville that tested a
bleaching apparatus that Nordyke and Marmon were ex-
perimenting with, and I don't know what that was, an agitator

was shipped to them in a large jug, a kind of a carboy, but I always thought that was sulphuric acid, but I don't know as to that, and I also experimented with fumes of the sulphur candle.

Counsel for claimant objected as not having anything to do with this case.

Mr. Butler: Well, I think it is very important or may become so, to consider the effect of NO₂ upon flour, whether it is made by nitrocele chloride or whether it is made by sticking an electrode in nitric acid, or it is made by feeding a soft iron wire into nitric acid if the fumes of NO₂ are brought into contact with the flour, and some witnesses to come in this case have used the fumes made one way and some witnesses have used the fumes made another way.

Mr. Elliott: I don't remember any testimony to that effect and we will deal with these matters when we come to them. What I am objecting to is this witness' discursive remark about various things. He says he thinks it was sulphuric acid, or something of that sort. That does not enlighten the—

The Court: But, Mr. Elliott, I pressed you yesterday, and did not get an answer as to whether or not there is any difference as to the method of manufacturing NO₂ or hydrogen peroxide or nitrous acid or nitric acid or nitrates or nitrites, and for reasons quite satisfactory to yourself you did not tell me whether you were going to combat that or not; so that not being a chemist, but having some general notions about it, I will have to let this evidence go on until you let us see what issue you are going to tender.

563 Mr. Elliott: Your Honor, I am glad you mentioned that because my associates called it to my mind. I really didn't understand Your Honor's question. If you mean as to peroxide of nitrogen, whether it is any different in the Alsop process from what it is in that generated commercially, we say so far as there may be peroxide of nitrogen in this air that is treated by the electric arc, it would be just the same as peroxide of nitrogen generated in any other way. Peroxide of nitrogen is the same however generated.

The Court: You don't intend to combat that?

Mr. Elliott: Not at all. What we say is, however, that there is a difference between this air modified by the electric arc containing a [more] trace of peroxide of nitrogen, and concentrated peroxide of nitrogen such as these gentlemen used. I did not catch the force of your Honor's question or I should have answered it earlier.

Mr. Butler: It will save me a world of trouble if it be conceded, Mr. Elliott, that the nitrogen peroxide is the bleaching method employed by certain other processes. I won't name them unless you express your willingness to concede it.

Mr. Elliott: Well, I cannot do that.

Mr. Butler: Can't you with respect to the Williams?

Mr. Elliott: I certainly cannot, I don't know.

Mr. Butler: The Naylor and Girard.

Mr. Elliott: The Naylor and Girard, of course we contend that—

Mr. Butler: You sued them and said then that you were the only people entitled to use that re-agent.

Mr. Elliott: But I mean as to the Williams process.

Mr. Butler: It is a peroxide of nitrogen?

Mr. Elliott: I contend it is, but I would not object to conceding it if I knew its composition, that's all, I mean I couldn't say. I am not a chemist.

564 The Court: We will simply have to go on and see what their chemists say about these things. I have my notion about it.

Judge Scarritt: If Your Honor please, what difference would it make if we are not showing any of these other methods. Now, I don't know anything about them, but I know enough about evidence in a lawsuit to know that we must stick to the issues laid down by the pleadings.

The Court: That is the A B C of the law. Please don't take up my time with that.

Judge Scarritt: I am not taking up your time on that, I am simply suggesting that to give us a basis for the admission of testimony in this case. Now, the issue in this case on this point is as to whether this flour has been adulterated by the use of the Alsop process. Now, if flour has been adulterated by the use of some other process it does not tend to prove that it was adulterated by the use of this process, and we are getting out into fields of conjecture and discussion that do not do us any good.

The Court: Precisely, and why now—I am not criticising anyone, though, but these cross-examination, somewhat lengthily, of which I am making no complaint, have been along the line that [possible] these chemists are wholly mistak-

en because flour was bleached in the laboratory with nitrogen peroxide generated in a way other and different from what it was generated by the Alsop process, thereby meaning that they are going to tender—that you gentlemen are going to tender an issue on that.

Judge Scarritt: Why, certainly, we are going to show that these fellows don't know anything about what they are talking about, if we can.

The Court: And these chemists say that your people don't know what they are talking about.

Judge Scarritt: That is all right.

565 The Court: Now, then, that is the pot and the kettle calling each other black.

Judge Scarritt: Why don't you ask Mr. Butler whether it is true or not?

Mr. Butler: I will answer it.

The Court: You people are denying that nitrogen peroxide as generated by the Alsop process is a different thing than what it is if generated in the laboratory?

Judge Scarritt: Oh, no.

The Court: Just a moment. I have got my opinion about that, but let's wait and see what your chemists say about it.

Judge Scarritt: Let's wait and see what the jury will do about that, and it is not for us or your Honor to decide. It is a matter—that is a fact for the jury to decide under your Honor's instructions, and it is a matter for us to submit to the jury.

The Court: The objection is overruled.

Judge Scarritt: We save an exception.

By Mr. Butler resuming:

Q. Have you been in mills employing other processes than the Alsop process for bleaching? A. Yes, sir.

Q. What processes?

A. Well, I have seen the Williams process, and, as I told you, I have myself experimented with this nitrocele, Dr. Wisner's gas, and I was in a mill in Nashville where they experimented with this bottle that came there, of course I don't know what that is.

Judge Scarritt: We object to that and ask that the answer of the witness be stricken out for the reasons heretofore stated.

The court overruled the objection; to which ruling of the court claimant then and there at the time duly excepted.

Q. Now, how long did you employ the Alsop process in your mill, Mr. Ballard?

A. We began somewhere about perhaps 1904, the latter part of the year, and used it until the Pure Food Commission ruled against it, and I think we stopped the last day of March, 1909, that is a year ago last March.

Q. So then that was about three or four years?

A. We used it from three to four years, I should think.

Q. On all your flour? A. On practically all of our flour.

Judge Scarritt: Now, if your Honor please, I object to the testimony of the witness wherein he said some state food commission ruled against it.

Mr. Butler: That is the Government.

Witness: I said the Pure Food Commission in Washington.

The Court: Yes, it is not proper what anyone said about that.

Witness: Well, we used it until the Government ordered it stopped, Judge.

Judge Scarritt: I object to that and move it be stricken out.

The Court: Let it go out.

By Mr. Butler, resuming:

Q. You stopped in March?

A. We stopped last March a year ago.

Q. Are you yourself a practical miller?

A. Yes, sir, I am a practical miller.

Q. And were you familiar with the manner of the use of the Alsop process as it was used in your mill?

A. Yes, sir, perfectly.

Q. You may describe how you used it there.

A. Will I describe the process for making the gas also.

Q. Yes, sir.

A. Our machines were really the old-style machines as made by the Alsop Company, among the first that were sent out. They consisted primarily of a cylinder about this long, about two feet long, and about four inches in diameter, two cylinders in a machine and in each of those cylinders they have a moving rod up and down, through which electricity is passed, and then there is a pump that pumps air through those two cylinders, something like this, and as those two rods
567 are pulled apart by a mechanism, the electricity is turned on, and as they pull apart, a very powerful elec-

tric current, a very strong, powerful flame is generated, and it seems like a flame, and the air being pumped through that cylinder where this flame and discharge of electricity is, seems to in some way change the quality of that air, makes it whatever it is, we always speak of it as the gas or that gas.

Q. And you say that got into the flour?

A. That was pumped through this, and then went through a pipe,—we had in our mill, we had four of these separate machines; we had land shafting, and each machine was driven by a belt and separate pulley, and each pulley had what we call a friction clutch, so we could run one machine, two machines, three machines or all four of them. Our practice was to run three machines ordinarily. We had more than we needed, so in case some machine would get out of commission or something would happen to it, like a machine would be shut down, we could put in another one; in that way we could maintain, if possible the uniform quality of our gas. The electrified air or the gas passed through this, about a four-inch pipe, up into the mill, and we bought from the Alsop Company, or their successors, machines known as agitators, that is a machine about eight or ten feet long, and probably two feet in diameter, and the flour is admitted in the top at one end, and passes out at the bottom at the other end; that agitator is shoved toward the center; it revolves, and has beaters like your hand that was intended to throw the flour up into the air and arrange it so that it could all come in contact with this gas and then pass out bleached.

Q. Did these agitators have a name?

A. No, they were called agitators. Then from there it passed through a spout and went in the conveyer carrying the flour to our packers. Our mill is rather a large mill, and it has grown from a very small one, and we had difficulty in placing these agitators, so we had to have ten; we put them in different parts of the mill and sometimes flour would drop
168 from this agitator to the spout to carry to the conveyer
568 back up to the packer, sometimes we had to have it repaired, but that was merely a detail of our mechanical location; it did not, as far as I know, effect the flour at all. We made a great many improvements on this, because, for instance, we wanted to get better results, naturally, from time to time; we sometimes felt we were not getting as good results as our neighbor, and we put up a drum, a large drum, four or five feet in diameter, and about ten or twelve feet high in a little area between our engine room where we had these electrifiers and our agitators, which we put in the mill, and then we allowed the gas to go through that drum and on through the pipes to the various agitators.

The Court: Just a moment. Some witness on the stand said the other day, I didn't understand exactly, that practically half way between the cylinder, that flaming arc and the agitator—what office does that drum fill?

A. Judge, it naturally fills this point, for instance, we had there our electrifiers, we will say—

By the Court:

Q. Oh, no, I don't want that; get down to the point.

A. Well, the point is this, that from the electrifiers to the agitators—

By the Court:

Q. About thirty feet in some gentleman's mill?

A. Well, in our mill it is probably one hundred, or some place along there, and it was deemed that the amount of gas going through there didn't have time to get itself in a capable state, or such a state that it would have the best effect on flour.

By the Court:

Q. A kind of storage drum?

A. It was a storage drum, it took that much longer.

By the Court:

Q. That is enough.

A. And we experimented with that, and then we put on three other drums, each of which is about two feet in diameter about five feet high, and this gas part of the treatment of the flour is in some way affected by the weather, how I don't know, whether by damp weather, or dry weather, or cold weather or warm weather, and we would experiment, if the miller found that he was not getting the proper treatment of
569 his flour, he would begin to experiment; we sometimes ran the flour through all four of these drums, sometimes but three of them.

Q. What do you mean running the flour?

A. I mean the gas through the flour drums, before going to the flour; sometimes it would go through three, sometimes we would cut out one and cut in another, and he would experiment repeatedly to get what he considered the best results. That is a mere detail of the mill.

Q. Now did you employ these agitators all of the time that you used the process for the purpose of mixing the gas with the flour?

A. Towards the latter part of our experience I did not feel that the agitators were necessary; I felt that the flour, the gas could go into a conveyor—

Judge Scarritt: I object to what he felt, if your Honor please.

The Court: Yes.

Q. It didn't really make any difference one way or the other, we took them out.

Judge Scarritt: I am not talking to the witness; I am talking to the court.

The Court: Mr. Witness, please just answer the questions as briefly as you can, and then wait for the next question.

A. We took the agitators out.

By Mr. Butler:

Q. Then after that how did you apply the gas?

Judge Scarritt: I object to that, because the process, as shown by the patent, called for the agitators, and to take this process after the agitators were out, so it makes no difference what was done.

The Court: I don't know about that. You may answer.

To which ruling of the court claimant then and there duly excepted.

A. Well, we just turned the pipes into the conveyor and let the conveyor act as an agitator, and we didn't see any difference in the results; that is all.

Q. Now sometimes you applied the gas by means of the
570 agitator, and sometimes by turning it into the conveyor, was there any difference turning it into the conveyor, observable in the effect of the gas upon the flour?

A. I didn't see any difference.

Q. Now as respects the character of this gas, did it have an odor? A. Yes, it had an odor.

Q. And can you describe, was that a characteristic such as you would recognize?

A. Yes, when you go into the mill any part near where the agitators were or where the flour was being treated, or in the packing room where the flour was being packed, you could smell this pungent gas and it was readily recognizable.

Q. Smell it in the flour as it went through the conveyors?

A. I never smelled it in the flour, never tried it.

Q. Where would you smell it?

A. Well, we would smell it in the mill near where the agitators was where it was going into the conveyors you could smell it in the packing room where the flour was being packed and along the line of the conveyor to the packing room.

Q. Did you observe the difference in flour before and after the treatment? A. Yes, sir.

Q. And at different degrees of treatment? A. Yes, sir.

Q. You may explain what you observed in that regard?

A. In our mill practically we bleach to a certain extent, and the flour was whiter by this bleaching, we had a spout that came to a certain table where we were in the habit of examining flour; that had a valve and shut it off, and that spout was where the gas would come through and sometimes, in fact any time we wanted to, examine to see whether our flour was bleached as much as it could be bleached, or what effect more bleaching would have, we would slick down on a board some flour, either bleached or unbleached, and put it under that spout and open the valve and allow the gas to come directly on to the slick plane that flour that had been flattened on the board.

Q. That would be the gas [our] of the conveyer?

A. No, out of the spout that went to the agitator.

Q. Yes, sir, that is after it had passed the drum?

571 A. After it passed these drums, and in our mill we never failed to find that the gas would continuously bleach the flour or bleach it more than we were in the habit of bleaching it.

Q. Now did you observe any flour that had been delayed in passage through the conveyors or the agitators or spouts or any place and subjected to this Alsop gas for a longer time than flour was usually subjected to it?

A. Yes, sir, in the agitators and in the spouts and in the conveyors wherever the flour would lie for sometime it would become yellow and more and more yellow until it would assume a color of a dark red orange.

Q. To what extent did you smell that; did you smell of that flour? A. No, I didn't smell it.

Q. Now to what extent did you observe that and what did you do about it, if anything?

A. Well, when I saw it, I instructed the miller that he must be very careful and every Monday morning we went over one Monday half the mill, and the other Monday the other half, and scraped off these parts, to avoid any possibility of the flour bleaching so that it should become overtreated in this manner, and we scraped that flour away and threw it on the dump.

Q. How often?

A. Every two weeks we scraped off these parts, one week half the mill, and the other week the other half.

Q. What kind of pipe did you use to conduct the gas from the gas machine to the flour?

A. At first we used, from these drums we used a galvanized iron piping about four inches in diameter, and as we would

take off branches to different agitators, they were usually two inches in diameter, and that was galvanized iron.

Q. Did you observe what effect, if any, the gas had upon the iron pipes and other substances with which it came in contact while you were employing it to bleach your flour?

A. Whenever we would be running it for some time we found that our pumps were not positive, and we put in what we call a positive pump, so that the air should go through these electrifiers uniformly and continuously and go to the agitators uniformly and continuously, and in putting in that pump, we put it in the middle, and were compelled to
572 take down some of these pipes, and in taking down the agitators and changing and deciding to put the bleaching in another part of the mill in these conveyors, we took down these pipes, and I just told the men to put the pipes back to the new part, and they called me over to the mill one morning and said, "Mr. Ballard, look at these pipes."

Judge Scarritt: We object to that.

Q. Well, you saw the pipes?

A. I did look at the pipes and they were all eaten up and rotted out, and would just open up in your hands.

Q. How long had they been used conducting this gas?

A. I say about two years.

Q. And they were about two inches in diameter, some were four and some were two, and they were galvanized iron?

A. Galvanized iron.

Q. Do you know the thickness of that?

A. No, I don't know the grade.

Q. Did you observe whether or not there was any sediment inside, or accumulations, perhaps is a better word than sediment?

A. Yes, sir, there was at various parts in the bends of the pipes and in the electrifiers and up in the pipes after you pass these drums, we found quite little collections of material, looked about like iron filings, kind of reddish color, and I just suppose it was iron filings or something of that kind.

Q. Did you make different kinds of flour there, as patent, clear and the like?

A. Yes, when we quit bleaching we were making then two grades of flour, an eighty-five per cent flour and a fifteen per cent low grade.

Q. When you commenced how was it?

A. Well I don't very well remember, when we commenced that was several years ago, we made a number of experiments and what we were doing when we commenced I really forget, but we calculated we were making 85 per cent of a high grade flour, and now we are making fifty-five per cent.

Q. Now, as to the color of the patent flour compared with the clear unbleached.

A. We make three grades of flour now; our patent 55 per cent, and what we call our clear 35 per cent, and low grade 10 per cent. The patent flour is whiter and clearer
573 than the clear flour, and the clear flour is whiter than the low grade.

By Mr. Elliott:

Q. How much of a percentage do you make clear?

A. 35 per cent, 55 patent, 10 per cent a low grade and 35 per cent clear. Of course you know that the per cent, they may vary one per cent; that is about what we are doing now.

By Mr. Butler, resuming:

Q. Now, as to the effect of bleaching by this Alsop process upon the color of these flours.

A. Our patent flour, as I say, is whiter than our clear flour, but we can bleach the clear flour in the ordinary commercial way and it will be whiter than our patent.

Q. And does the amount of bleaching or whitening depend upon the amount of pressure by the gas?

A. Yes, sir, it does.

Q. The more gas the whiter?

A. The more gas the whiter it is until it gets a purpleish, lavender color after a while.

Q. Now, have you observed the relative keeping qualities of the flour, that is the same flour, bleached and unbleached?

A. Yes, sir.

Q. What is the effect in that regard?

A. So far as color is concerned the bleached flour seems to go on bleaching, and after a while, after a month or two months, it gets a lavender or purplish hue, and gets what we call a sickly hue, and it gets that more and more the longer you wait; but with regard to the keeping quality of bleached and unbleached flour, in another regard, that is with regard to must, flour is liable to get musty if stored, and particularly stored in not a very dry place, and the bleached flour is less liable to get musty than unbleached flour.

Q. Did you ever make any comparison of bread made from the same flour, one being bleached by the Alsop process, and the other being unbleached?

A. Yes, I heard the question raised as to whether or not the chemical—whatever it was which is in the flour, was dissipated and passed off in the making of bread; and I made some experiments by making bread of unbleached flour, and making bread of the same flour bleached, and I found
574 that when we would cut them into hunks and put them into the glass jar, and set that aside for a day or two

or three, that the mold—whatever the mold is I don't know—the mold would come on the bread made from unbleached flour sooner than it would come on the bread made from bleached flour.

Q. And the bleached flour used for this purpose, this was bleached in the ordinary way?

A. One before going through the bleacher and the other afterwards.

Q. And just in the same degree that you were accustomed to use? A. The regular commercial method.

Q. And was there much difference in time requiring the development of mold?

A. Ordinarily I should say that mold on the bread would appear on the unbleached bread, made from unbleached flour, perhaps in two days, depending a little on the water and the conditions; and on the bleached flour it usually took from one to two days longer, I mean on the bread made from bleached flour it would take from one to two days longer before the mold would appear.

Q. Now, as to the kinds of flour that you bleached: did you bleach any part of the patent?

A. We bleached all of our flours of three grades.

Q. That is, a patent, clear and low grade? A. Low grade.

Q. And the effect upon the color of each compared with the color of the others of each grade, compared with the color of the others, what was that?

A. Well, I can bleach the clear and make it as white as the patent; I don't think that the ordinary mill can bleach the low grade and make it as white as the flour, low grades don't yield to bleaching so readily as other grades.

Q. Now, if the same degree of bleaching be applied to the different grades, that is, the patent and the clear and the low grades, I mean the same amount of treatment or gas be applied, what will be the relation of the colors afterwards?

A. Well, the patent is whiter than the clear; the patent will remain whiter than the clear, and the clear will remain whiter than the low grade, and the bleaching does not affect that relative position particularly. If the patent remains unbleached, and the clear is bleached, the clear will be whiter than the patent unbleached.

Q. Now, in case the patent be bleached relatively lightly, the clear heavier, and the low grade still heavier, then the relation of color of each to the others?

A. Well, if the patent, of course, is bleached lightly, and the clear heavily, I should say that you could get to the point that you could make the clear and the patent practically the same, but you can never bleach a low grade to make it look like a patent.

Q. Why?

A. Because the fiber and the bramy particles and the germ which is more or less intermixed with low grade flour, those elements do not seem to be affected by this gas so far as color is concerned.

Q. And is there a difference in the granulation, or quality of the flour, itself, low grade, as compared with patent?

A. Of course the low grade flour won't make as good a loaf of bread as the patent.

Q. Whether bleached or unbleached?

A. Whether bleached or unbleached, it won't make as good a loaf of bread as the patent or the bleached. I have judge, here packages of unbleached and our bleached flours, if you want them in evidence, if you think it is worth while.

Q. Have you them here? A. Right here.

Q. Would the colors be observable in these lights?

Judge Scarritt: We object to the samples; that comes bleached under different conditions; he says the bleacher affects it and the location affects it, and all that sort of thing.

The Court: Objection overruled.

Judge Scarritt: We object to it and save our exceptions to the ruling of the court.

Witness: This flour, I would say, was not bleached in our mill, it was bleached here in the chemical laboratory.

576 Judge Scarritt: We object to that for the same reasons and the additional reason that—did you bleach it yourself? A. I was with the gentleman when he did it.

Q. Did you bleach it yourself?

A. You mean did I hold the machine in my hands?

Q. Yes, sir. A. No.

Judge Scarritt: I object.

The Court: Objection overruled. To which ruling of the court claimant then and there duly excepted.

By Mr. Butler:

Q. You saw the bleaching?

A. I saw him do it, yes.

Q. It has been done since the adjournment of court last night?

A. It was done last night and I was with him when he did it.

Q. And you observed a great deal of bleaching by Alsop's process, of course? A. Yes.

Q. And you also observed this bleaching? A. Yes, sir.

Q. And you may state whether or not the effect is the same.

A. As far as I can see there is no difference.

Q. Now, you may show the unbleached and bleached. Now, what is it you bleached?

A. I have here our patent 55 per cent, and that is unbleached, and I have clear 35 per cent unbleached, and we bleached yesterday the clear, I can show you.

Q. Now, before the bleaching what was the relative color?

A. Before the bleaching the patent was whiter than the clear.

Q. And after the bleaching?

A. After the bleaching the first effect of the clear is to be whiter than the patent; after they dry out, a dull sickly color comes over the bleached flour, as it generally does, but I can show you directly that the clear flour bleached is whiter than the patent unbleached.

Q. Now, a little more as to the description of that. You speak of a dull sickly color coming over the bleached flour?

A. Yes, sir.

Q. After time elapses after the bleaching. Now, what is the fact with respect to the unbleached flour as to its color; can you describe the color?

577 A. Well, unbleached flour when first made has a color that is rather bordering on yellow, a yellowish hue, creamy but still a yellowish cream, and if that flour is set aside a month or two months it seems to what we call bleach-out, the yellow to a certain extent leaves it, and it becomes a brighter, creamier, whiter color; I think all of the flours that I have ever examined do turn whiter with age.

Q. And does quality also improve with age?

A. The quality also improves. Flour that has been set aside for a month or two will make better bread and give better satisfaction to the baker and the housewife both, than flour which is fresh from the mill.

Q. You refer to bleached or unbleached flour?

A. Unbleached flour.

Q. How about the bleached in that regard?

A. So far as the bleached flour is concerned I think that it deteriorates from the day it is made and bleached.

Q. Goes down at once.

A. I think it does, it goes down until finally that pretty bloom is gone and it assumes a sickly lavender or purplish hue.

Q. Now, you may show the effect of bleaching of this clear flour as compared with the unbleached patent.

Judge Scarritt: We object to that for the reasons heretofore given.

The court overruled the objection; to which ruling of the court claimant then and there duly excepted.

A. Shall I make the test?

By Mr. Butler:

Q. Yes, sir.

The Court: No tests made, I think.

Mr. Butler: He has the flour, but what he means by the test is simply have a piece of wood and smooth it down, put one right down by the side of the other; it wont take but a moment.

The Court: Well, all right.

578 Judge Scarritt: I understood Your Honor to rule that there were to be no tests?

The Court: I did, but I likewise ruled on your behalf yesterday that you could present exhibits that you had here in the shape of flour, and that was done.

Judge Scarritt: We are not making any tests.

The Court: Oh, you have forgotten, Judge Scarritt, you had a gentlemen up here trying to smell flour yesterday; that was only on yesterday. Now, then, they have to take the other one of the five senses and look. I cannot certainly be mistaken over what occurred here within the last twenty-four hours.

Judge Scarritt: I don't think you can, Your Honor, your memory is pretty good.

The Court: Well, if I am mistaken, Mr. Smith wont endorse you on that.

Judge Scarritt: I am not objecting to that; I am not objecting to his smelling anything.

The Court: Oh, they used to tell me there were five senses. Do you claim that you can use the one sense of smelling, but not the other of seeing?

Judge Scarritt: I am not objecting to his hearing, tasting or smelling, but I don't know what kind of a test he is talking about.

The Court: Objection overruled.

To which ruling of the court claimant then and there duly excepted.

The Court: Lay out some of that flour on one of these boards and do it while we are talking about it.

Mr. Butler: You have seen them do it, haven't you, you know whether it is a test or not?

The Court: Let's spend no time, let's get right at it.

Witness: I can do it in a minute, Judge; give me that full of water.

579 Mr. Smith: Your Honor, this is going into the experimental stage.

The Court: I can do it myself; put some flour on that board.

A. Yes, sir, I can do it.

The Court: Bleached or unbleached?

Mr. Smith: I do not object to that.

The Court: We cannot make any chemical tests here.

Mr. Smith: I do not object to the chemical tests if the bar is going to be opened for chemical tests.

The Court: The trouble is—I got the idea by a hurried examination the other night of Wigmore—the great trouble is if you make tests, in carrying it into the record in proceedings for review, and it looks to me like that is a valid objection. Whoever is defeated in this case has a right to have the case reviewed on the evidence, and you cannot got these chemical tests made in the presence of the jury into the record.

Mr. Smith: I understand.

The Court: Now, that is what impressed me.

Mr. Smith: I am not going to object to that at all if we can have the understanding that tests are to be made by both sides I am willing that every conceivable shall be made here by him if he wants to, but of course, I shall claim the same right when we come to our testimony.

The Court: Oh, both sides will claim that, and you know I have ruled against it.

Mr. Smith: If they are not to be permitted we shall object to that.

The Court: Put some flour of each kind on that board or some other board side by side.

Mr. Lyons: Your Honor, may I make this suggestion?

The Court: Now, all you gentlemen can give me lots of instructions by your arguments, but we will never get through with this case.

Mr. Lyons: He wants to dip them in the water so as to preserve it on the board.

The Court: I don't care what he wants; it will not be done; put it on the board; anybody knows how to do that.

580 By Mr. Butler, resuming:

Q. Have you prepared specimens of these flours side by side for the purpose of comparison of color? A. I have.

Q. Is this the usual way millers and bakers, and others compare it?

A. It is the way, as far as I know, it is practically the way all millers do, slick it down and dip it in water.

Q. Is the comparison made before or after the flour is dipped in water, usually?

A. They dip it in water first, as a rule, you can compare it better, dipping it in water has a tendency to bring out the color; it shows it plainer.

Q. The comparison is more plain after.

A. Easier to see the difference after wetting than it is before.

Mr. Butler: Is there any objection to this being dipped in water?

Judge Scarritt: No, if you will let us experiment we will let you, that is all there is about it.

Q. You may show the flour to the jury.

A. (Witness exhibits the two samples of flour to the jury.) This is our patent and clear, both unbleached. It is very hard to see with the gas light. The patent is on that side, and the clear is on this side; the line is down through the center. Now, this is our patent flour unbleached, and this is our clear flour bleached—very little difference, I think you would hardly be able to see it by gas light; have to get it in the daylight to see it, and then the color shows plainer if it has been wet. This is patent on this side and that is clear on that side.

Judge Scarritt: We object to the witness arguing the matter to the jury, if Your Honor please.

Mr. Butler: I don't think it is an argument to the jury.

Judge Scarritt: It is marked on the board there just exactly what it is. That is all the jury wants to know.

Mr. Butler: I still think it is not an argument.

The Court: Well, go on.

581 Q. Now, have you become familiar with any method of chemically testing flour to ascertain whether it is bleached by this gas or not?

A. Yes, sir. Our attention was first called by a firm at New Orleans that made, I think two liquids and on mixing them together, and dropping a drop on the bleached flour, as a rule it turns it pink, and on the unbleached flour it apparently does not; it turns it the least little bit, but does not turn it to the color of the other.

Q. And what is the color of the liquid you say you drop on?

A. It is clear, practically a water color.

Q. Is that known at the Griess test of Griess-Vilosa test?

A. I think it is, but I am not sure.

Q. And the bleached flour will turn pink under a drop of that? A. Yes, sir, turn pink.

Q. And the unbleached flour remains unchanged?

A. Yes, sir.

Cross-Examination

By Mr. Elliott:

Q. Mr. Ballard, I think you stated you were a stockholder of the Alsop Company. Will you just explain that situation?

A. Well, the first time I ever heard—

Q. Just let me ask you this, you are a stockholder, are you not, of the American Milling & Purifying Company?

A. The American Milling and Purifying Company.

Q. And you stated that company—

A. That is in some way consolidated with the Alsop, I don't know exactly.

Q. But your stock is in the American Milling & Purifying Company?

A. Yes, sir, which is the Alsop Company now, I believe.

Mr. Butler: What was that, Mr. Elliott, change of name or taking over?

Mr. Elliott: Simply took over its name.

Mr. Butler: Took over the property.

By Mr. Elliott:

Q. Now, I understood you to state that you never smelled the odor of this gas in the flour?

A. I am not sure that I ever smelled the flour at all
582 to see if I noticed the odor.

Q. And I will ask you if you ever observed any color, or first, if you ever tried to ascertain if this gas differed in color from the Alsop machine?

A. No, I never tried to ascertain.

Q. And you never noticed if it had any color or not?

A. No, I never noticed any color.

Q. Well, I believe you have stated that you took some flour and held it under the pipe?

A. We had a pipe that came—about two inch and a half pipe, that came down where our flour testing table was, and setting up, say within probably a foot of the table.

Q. Yes.

A. And we had, of course we had a valve for the closing of the pipe, and, as I say, we put a board underneath that pipe, to let the gas blow on the board for these special tests that we used to make sometimes; I never noticed any color in that gas, no.

Q. Then when you made that test you couldn't see any color?

A. I never noticed any color, no, sir, never did.

Q. Now, as I understand it, you would hold this flour to this pipe and bleach the surface of it to ascertain if you were getting the bleach you desired?

A. Yes, sir, to see if—just to experiment to see whether the flour should be bleached more, or we were bleaching it sufficiently, and just to test our flour, yes, sir.

Q. Now, when you found you had gotten the—I think you denominated the maximum bleach, did you?

A. Well, the bleach that we desired, we never bleached our flour to the maximum; we were afraid to do it.

Q. Now, when you had bleached the flour, and the color was white? A. Yes, sir.

Q. You understand? A. Yes.

Q. Now, do I understand you to say that you could still bleach that and make it whiter? A. Yes, sir.

Q. And when you got the maximum whiteness, that is to say, if you bleached the flour to the maximum extent, as you have stated? A. Yes.

583 Q. Then you don't mean that you can still go on and bleach and have any change in color, do you?

A. Yes.

Q. Make it still whiter?

A. It becomes after you continue to bleach on for any length of time, it becomes, as I said, a sickly lavender or purplish color.

Q. I am not speaking now about bleaching in lavender; what I mean is when you get the white color, or the maximum bleaching, as you may term it, then the flour does not go on and still get whiter from bleaching?

A. As I understand it, Judge, the flour has a yellowish hue to start with, a cream color. If we bleach it a little, some of that color matter is taken out; if you bleach it more, more

color matter is taken out; and the more you bleach it the whiter it gets up to the point that it begins to go back then, and gets this lavenderish color. There is a point, up to a certain point it keeps on getting whiter and whiter and whiter, and after that it gets lavender, more lavender and still more lavender, yes.

Q. Well, you don't make lavender flour?

A. We try not to. That is why we only bleach to a certain extent.

Q. Now, as to this flour in the agitator, I understand you to say that this flour became—that lodged in the corners, as it were? A. Yes.

Q. Became discolored? A. Yes.

Q. In time? A. Yes.

Q. How long did you say that would take?

A. Well, I should say, depending on the amount of gas that was applied to it, different places, there seems to be more of it than other places, two or three months.

Q. It begins to get stained?

A. Yes, sir, get this yellowish color.

Q. And the miller cleaned it out every two weeks, as I understand? A. Every two weeks.

Q. Now, as regards bleaching, how long does it take you to treat your flour in bleaching?

584 A. Well, so far as I know the effect of the gas on the coloring matter in the flour is almost instantaneous.

Q. It is almost instantaneous?

A. Probably the flour would remain in the agitator with the gas, in passing through it, I should say, oh, thirty seconds, maybe possibly, I don't know.

Q. And this discoloration, that is what I want to bring out, this discoloration there you referred to is where flour has lodged in the agitator and been subjected to it for two or three months?

A. And been there continuously some two or three months.

Q. Or maybe even longer?

A. Oh, it might be, it gets yellower and yellower as it goes on.

Q. Now, these pipes that had been in use two years, they were galvanized iron pipes? A. Galvanized iron pipes.

Q. That is substantially the same that you would have in a rain spout?

A. Well, rain spouts usually, I think, are tin, but these were galvanized iron.

Q. Well, I mean substantially the same thickness?

A. Yes, sir, they were light just such as the tinner put up for us in the beginning; I did not particularly inquire as to their thickness or their gauge.

Q. As a matter of every day common knowledge would not such a pipe if left out exposed to the atmosphere, rust every two years, rust and decay?

A. Oh, galvanized iron, of course, does not rust as readily as other iron.

Q. I know, I didn't say as readily, but as a matter of experience?

A. I think there is no question about it that it will rust in time, out in the open, out in the rain, yes.

Q. Now, I believe you stated you did not remember the percentage of what you have termed your patent flour that you were making when you started to use this Alsop machine?

A. Well, our policy always has been to make such a per cent of patent that would give satisfaction, such a per cent as we could.

585 Q. Yes.

A. And we experimented from time to time, and our per cent of patent has varied at various times, as to the quality of wheat that we did use at that time I do not really remember; we sometimes would make probably sixty, sometime seventy, and it may be that the very particular time that we adopted the bleaching we may have been making 85 per cent, which we were making when we started, but we had various ways of swinging certain flours into the patent and out of the clear to some extent, according to the demands of the trade, and to some extent as determined by the wheat that we were milling if it was sufficiently good to make a larger per cent that you can make from common wheat.

Q. State what you mean by swinging the same flour into the patent and some out of the patent; what do you mean by that?

A. I can illustrate this by the separator in making cream, you can make cream of almost any thickness by setting the separator, you can make a thicker cream or a thinner cream, and you can make more cream or less cream. A Jersey cow will give more cream to the amount of milk than a Holstein cow. The same with our wheat; we take good wheat and plump wheat and nice soft wheat, we can put a larger per cent of that wheat into our patent flour than if the wheat is broken, shriveled and more or less injured and damaged. Now, practically speaking, it is impossible for us to always get every grain of our wheat of very high quality. Crops change, weather changes, conditions change and as conditions do change we draw a larger or smaller per cent of patent, always making as much as we can, Judge.

Q. Yes, and that percentage, you have stated, I believe, would go up as high as—might go up as high as 85?

A. At the time that we stopped bleaching, and it may have been for four or five years preceding, I don't really remember, we were making 85 per cent of patent flour.

Q. And, in your judgment, that is a patent flour?

A. Well, I don't—

Q. You called it such, at any rate?

586 A. Well, our brand—we don't brand it anything, we just brand it "Ballard's Obelisk Flour", but in my judgment, a winter wheat mill in my section cannot make a good patent 85 per cent; now spring wheat in Kansas and the West will make a larger per cent of patent than ours.

Q. But just to get the straight, now, I understood you to say that possibly before the bleaching you were making perhaps as high as 85 per cent patent?

A. We may have the same per cent during that entire time, I would not say that we did not, I really don't remember.

Q. But your information or recollection would be that it may have been during the time you were not bleaching, your percentage may have been just as high as it was after installing it?

A. It may have been. I will say if you will accept it in evidence, a great many mills never change their per cent at all when they began to bleach.

Q. Now, as I understand it, you state you are making a 55 per cent?

A. Now, we make a 55 per cent patent.

Q. Now, was that change in percentage made by you for commercial reasons?

A. I will say that it has been my custom to examine the different flours in our mill while we were bleaching I would go over to the mill and begin examining different flour.

Q. Well, I—

A. I am only going to tell you why I changed to the smaller per cent.

Q. I just ask you if the change was made for commercial reasons?

A. It was made to make our flour better. When we stopped bleaching I found that a part of our mill was not doing good work, and I had not known it while we were bleaching. I would say to the miller, for instance "Your fourth grind is whiter [that] your first grind. Why is it?" "Why" he says, "Some gas gets into the machine"—

Q. I have no objection to your giving this at the proper time.

A. And therefore afterwards when I had occasion to get into the mill and we could understand the mill, and we got the mill after we stopped bleaching, and I could really tell, I found there was being swung streams of flour into the

patent flour which I did not think should go in, because they were not good enough to go in it. Well, I took them
587 out and put them into the clear.

Q. But if you had been grinding at that particular time a high grade of wheat, as I understand it, that stream might very properly have gone in?

A. No, there were certain streams that were going in that ought not to have gone in.

Q. I understand, but I say, if you had been using a high grade wheat?

A. It varied to some extent, but some streams were going in that ought not to have gone in at all.

Q. Now, I understood you to say that you can bleach what you have denominated your bleached flour and make it whiter [that] your patent flour unbleached? A. Yes, sir.

Q. That is on the basis of your present arrangement of milling? A. Yes.

Q. Now, I will ask you if that clear flour that you have bleached will not still possess a color different in character from the patent flour unbleached?

A. Yes, sir, the patent flour unbleached will retain that bright creamy color, and the clear flour bleached will be that sickly white.

Q. Yes, the two colors are very markedly different, are they not, the character of them?

A. They are still different and always will remain so.

Q. Now, I will ask you, Mr. Ballard, if you put an unbleached clear beside of an unbleached patent, won't that clear flour still possess that peculiar, what you term a sickly color, as compared with the patent?

A. I like the color of the patent better than the clear always, but there is very little, except the patent is whiter.

Q. I just want to get a direct answer. The character of the color of the clear unbleached will still be different from the character of the unbleached patent, very slightly?

A. Yes.

Q. What in your judgment, is this sickly color of the clear due to?

A. You mean the bleached flour?

Q. Either bleached or unbleached, it don't make any difference.

588 Mr. Butler: He didnt say that the unbleached had a sickly color.

A. No, I don't think it has.

Q. The unbleached—the clear flour is not as good a product?

A. I don't think the clear flour is as good a product as the patent flour.

Q. Yes, this is unbleached now?

A. Unbleached. Now, the flour made in our mill, to start with, our patent flour is the first grind of our middlings, the first, second, third and fourth, we put, down to the fourth grind, into our patent, and those flours are more or less free from what you would call germ, the branny particles, and the woody fibre. That is the purest flour that we make. Now, as you go on down in your grinds there is more or less woody fibres get into the flour, and more or less germ gets into the flour, and more or less branny particles, which are cut up so fine they cannot be separated by bolting at all, go into the clear, and to that extent it contaminated the color of the clear, and of course as you go down into the mill, the old grist will contain a larger percentage of woody fibres, germ and branny particles, and it is still weaker and still less desirable color.

Q. Now, I will ask you, Mr. Ballard, as to these impurities you have spoken about in the clear and that the bleaching has no effect on their color?

A. As far as I know the bleaching has no effect whatever on either the germ, the woody fibre or the branny fibre; it does not seem to affect them in the least degree.

Q. Then isn't it true in your experience, Mr. Ballard, that in your clear flour, so far as the flour contents are concerned, there would be a greater contrast between the product of that flour and those impurities after bleaching than there would be before bleaching.

A. Well, that question has been discussed a great deal, but the amount of the branny particles, whether bleached or unbleached, in the clear flour, is so completely overshadowed and covered up by the flour particles that you cannot see in the bleached flour, in my opinion, the impurities any better either in the bleached or unbleached. It is not material
589 from a commercial standpoint, in my opinion.

Q. Let me ask you if you had a purification system sufficiently fine to remove those impurities from the clear, what would you say as to its color?

A. It would be whiter, of course.

Q. Now, then, take the patent and the clear after bleaching. A. Yes.

Q. Now, I have understood you to say that the clear has a sort of sickly color as compared with the patent?

A. The clear bleached has a sickly color as compared to the patent unbleached.

Q. I will ask you what, in your judgment is that sickly color of the clear due to; was it due to impurities in the clear?

A. No, it is due to the bleaching.

Q. But I mean the color that is imparted to the clear is not imparted to it by the bleaching, is it; that does not make the clear flour sickly, do I understand?

A. So I understand, it is not sickly when it is unbleached.

Q. It is not due to the inferiority of the clear?

A. Well, that sickly color appears in the clear flour when it is bleached, and not when it is aged naturally, if you age it naturally, it is not there apparently, when you bleach it it is; now, I think it is in the bleaching.

Q. I understand; but I understood you to testify that this distinct difference in color obtains as between the clear unbleached and the patent unbleached?

A. I think the patent by this bleaching assumes after a while that sickly color also.

Q. I am not asking about that just for the present. I say there is that same difference in the character of the color in the clear before bleaching, as compared with the patent, that condition exists, and did, the color, irrespective of bleaching?

A. The clear flour in our mill is not as good a color as the patent, no.

Q. But isn't it a fact that it is due to impurities in there, don't you think?

590 A. Yes, sir, I think so. I think it is due to the impurities that are in the clear, yes.

Q. And those impurities, in your judgment, would inevitably have some action in modifying the color of the clear flour?

A. Undoubtedly, I should say Judge, it may be. It is a very technical question as to whether or not middlings is whiter, and whether the inside or outside of the flour is more white or less white, but that is fairly technical, and I do not feel like taking that up from a milling standpoint.

Q. All right, I won't ask you about that. Now, you also testified, I think, that if you take these three grades that you have referred to, patent, clear and low grade— A. Yes.

Q. And if you should bleach them all? A. Yes, sir.

Q. I understand you to say you don't bleach the low grade?

A. Yes, we did bleach, but—

Q. I understood you to say—

A. I say we tried to bleach, but it improved but very little as compared to the other grades, in color.

Q. If you should bleach these three grades you say the same difference the same relative difference will exist in the product after bleaching as would exist before bleaching?

A. Yes.

Q. I believe you stated that you did not place the word "Patent" on your flour, is that correct?

A. No, our brand is just "Ballard Oblisk Flour, Louisville," that is the brand.

Q. You used this Alsop machine from the year 1904 to the year 1909?

A. Yes, I think we started it in the year 1904, in that winter sometime, yes, that fall.

Q. Used it all the time?

A. Yes, sir, used it continuously.

Q. Now, I will ask you what is the color, the natural color of flour made from the wheat of your section of the country, which I think is a soft winter wheat?

A. Soft winter wheat.

Q. As compared with the color of the flour made from the wheat of this section, say Kansas, Nebraska and Missouri and Iowa?

A. It has always been understood by us that our wheat
591 made a whiter flour than the Kansas, but not so rich in gluten.

Q. Yes.

A. Bakers won't have our flour at all, as a rule.

By Mr. Lyons:

Q. What is that last statement?

A. Bakers won't use our flour at all, as a rule. We sell no bakers at all.

By Mr. Elliott:

Q. And with this bleaching process not in use, you would possess an advantage from that natural condition that exists as respects the wheat, over a miller in your position in this section of the country, would you not?

Mr. Butler: Well, I object to that as immaterial.

The Court: Oh, he may answer.

A. The flour from wheat grown in the Ohio Valley is whiter, as I understand, than flour made from wheat grown in Kansas; Iowa makes a whiter flour than ours; but ours is whiter than Kansas.

Q. Yes, well, you would possess an advantage in that respect over a miller in Kansas?

A. You mean to the family trade or to the baker trade?

Q. Well, family trade.

A. Yes, the same advantage would obtain, however, if both of us bleached, you understand that.

By Judge Scarritt:

Q. If both were bleached.

A. If both were bleached, the same relative difference would exist as if they were unbleached; our bleach is much whiter than Kansas flour will.

By Mr. Elliott:

Q. Mr. Ballard, have you not gone on record as stating that your objection to this bleaching process was selfish, and I mean by selfish, for your peculiar personal advantage, and for commercial reasons? A. I want—

Q. Well, you may explain afterwards. Just answer the question.

A. Well, I don't know what you mean by "on record".

Q. Gone on record. Well, have you made a speech of that kind?

A. I made one to the Southeastern Miller's Association.

Q. I am going to ask about that, but I say have you made a speech of that kind?

A. I have no doubt I have. I think that without bleaching we have the advantage over the Western and Northwestern millers the same as we have with bleaching, but that
592 without bleaching I think our flour is the best flour in the world, yes, sir, I think Kentucky raises the finest wheat in the world.

The Court: The best looking women and the best horses.

A. The best horses and the best whiskey.

The Court: All right. You take any issue on that, Judge?

Judge Scarritt: No, sir, it makes me thirsty, and I have no objection to making tests on the latter proposition.

The Court: Well, we can wait a half an hour. Of course that is simply with reference to another matter; you can lay the foundation; we cannot tramp all over those millers' conventions. Ask him the question direct if you want to reach that.

By Mr. Elliott:

Q. Now, I will ask you the direct question, if you placed yourself on record by public speech or otherwise as stating that your objection to the process was for selfish reasons and for the commercial advantage for the commercial advantage the doing away of the process would give you?

A. Well, I went to the meeting—

The Court: Now, Mr. Elliott, you still don't get to the point. This question can only be admissible for one purpose in the world, which you and I both understand. You must ask him the place, time, persons present, and so forth. Now, let's get at that in an orderly way.

Q. At a meeting of the Southwestern Millers' Association?

A. Southeast.

Q. Southeastern Millers' Association, I should say.

A. Yes, sir.

Q. About a year ago, wasn't it?

A. Probably a year ago, more or less.

Q. Now, you can answer the question with that amendment? A. The association—

The Court: Wait till he gets his question.

By Mr. Elliott:

Q. At this particular meeting did you go on record in that regard?

A. The association of millers known as the Southeastern Millers' Association comprises the millers along the 593 Ohio Valley and Tennessee and—

Mr. Elliott: Won't you answer that question?

The Court: Now, Mr. Elliott, I am having more trouble with you than with the witness. Ask him if he didn't say thus and so in such and such a place and such and such a presence. Now, let get at that.

Witness: I told the millers—

The Court: No, don't make any difference what you told them.

By Mr. Elliott:

Q. At the meeting of the Southeastern Millers' Association about a year ago did you say—

The Court: Where?

By Mr. Elliott:

Q. At Nashville, Tennessee, in substance, in a public speech, that your objection to the use of this Alsop bleaching process was for selfish reasons and for the commercial advantage the abolition of the process would give you as compared with millers in other sections of the country, substantially that?

Counsel for libelant objected to the question as immaterial.

The Court: He may answer.

A. I have no objection to telling what I did say.

The Court: Answer the question, please, yes or no, did you?

A. Well, Judge, I did not put it in that way; I didn't say just that sentence as far as I remember.

Q. I say substantially, or in words to that effect?

A. I told these millers—

Mr. Smith: No.

Witness: I am perfectly willing to say, yes, I said words to that effect.

The Court: That is all.

Mr. Elliott: I think that is all.

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Redirect Examination

By Mr. Butler:

Q. What did you say to them?

A. I told those Southeastern Millers that all the hue and cry raised about bleaching was done by the bleaching men themselves.

Judge Scarritt: Wait a minute, if Your Honor please.

The Court: He has a right to bring that out, he said he didn't say it, now, what did he say?

A. No, I said words similar to that.

Mr. Butler: I want to show how similar they were.

The Court: Go ahead.

Judge Scarritt: Just a moment. The question is if he said substantially the words at that time and place, he answers that yes; that ends it; if he answered it no, then he can answer what he did say and I make the objection to this cross-examination for the reason that he has said he made substantially that remark at that time and place.

The Court: He said—I don't repeat him in words—he said that he made that remark, but not in that way, or something of that kind.

Judge Scarritt: He said substantially.

The Court: Well, he may answer now. Make this short.

To which ruling of the court claimant then and there duly excepted.

Witness: Judge, I meant to say to those millers that the wheat grown in our section had all the qualities necessary for good bread making wheat for family use; it has strength enough, it had color enough, and it did not need any outside or artificial rushing or powdering or coloring up or chemicals to make it good. That is what I told them.

By Mr. Butler:

Q. Is bleaching a part of the milling process?

A. The milling process, as I understand, consists, Judge, I consider this not—I consider the milling process consists

in making pure flour and separating all impurities from the flour; that is what I consider the art of milling; and after the flour is made I do not consider that then treating it
595 with chemicals is part of the milling art.

Q. Now, you told me, as I understood you, in your answers to my questions indirect, that you bleach your patent and your clear and your low grade; bleached them all heavily?

A. While we were bleaching we had them all in the bleach, yes.

Q. So the color of the low grade was affected, the color of the clear was affected and the color of the patent affected in like stages? A. Yes, sir.

Q. But if you bleached the lower grade, the clear and the low grade more than you bleached the patent, they would be brought up close together?

A. Well, the more you bleached them the whiter they got.

Q. Now, with reference to this sickly color and the lavender; does that go to your 55 or 60 per cent or high grade?

A. Well, they are overbleached; the bleaching seems to continue after it is put in the barrels, and when you bleach it it keeps on, and after a month or two all flours that have been bleached that I have examined have that sickly lavender hue.

Q. You say after it is in the barrel and shipped and sold?

A. After two or three months, yes, it keeps on bleaching.

Q. Now, have you observed whether it is true if it be bleached flour, as far as you can go with turning it yellow.

A. No, I have never made that test.

Q. But with the degree of bleaching that you gave it?

A. Yes?

Q. It continued to work all the time?

A. Continued to bleach even in the barrel and continuously.

Q. By the way, I intended to ask you in direct examination whether or not you had this scheme or invention of Professor John A. Wisner in your mill for a while.

A. Yes, sir.

Q. That is called the nitrocele chloride?

A. I think so; we experimented with that.

Mr. Butler: Is that chloride or chlorine?

Mr. Elliott: Chloride.

596 Q. Now, that produces a gas too?

A. That was gas itself, that had been compressed and shipped to us.

Q. And how did that gas smell compared with the Alsop gas?

Mr. Smith: I object to that as immaterial.

The Court: Oh, I think so. Objection sustained.

Mr. Butler: Your Honor, the purpose of this is a foundation question, for the effect of other flour treated by NO₂, our contention is that NO₂ is the same wherever used.

The Court: I know, but he doesn't know what this was.

Mr. Butler: He knows as far as smell is concerned.

The Court: Objection sustained.

Recross Examination

By Mr. Elliott:

Q. Just two questions, if Your Honor please. As bearing on the bleaching as you have given it in that where you put the flour under the pipe. A. Yes.

Q. And bleached it, you say if you had put that flour back again it would still have bleached more?

A. We would slick the flour down and put it under the pipe, and sort of test it along under the pipe and it would be bleached a certain amount, I could test it along under the pipe again, and it would be bleached more, and I could hold it under the pipe for a half a minute continuously and it would be bleached still more.

Q. And after that period?

A. Well, there was a time when I don't remember that it made any difference.

Q. In other words, you say that if you put that flour under the pipe and bleached it— A. Yes.

Q. Letting the gas run on the surface? A. Yes.

Q. And take it away? A. Yes.

Q. And then bring it back again, that you could bleach it still more?

A. No, I say we just sort of tested this way, just tested right under the pipe, and it bleached a certain amount; I could place it under the pipe a second time, it would
597 bleach it more; I could hold it under the pipe say continuously for half a minute and it would bleach it apparently as much as it could be bleached.

Q. Yes, sir, and it would not bleach any more after you put it back again?

A. I do not recall, I should imagine not, no, sir.

Q. Now, you stated the more you bleached these flours the lighter they get. Now, let me ask as to that clear flour: You say that the more you bleach that clear flour the lighter it will get?

A. As I tried to explain that when you bleach a certain amount it turns, it takes off some of the coloring matter; if you bleach it more it takes off apparently more of the coloring matter, and there is a certain point that it apparently is as white as it can get. Now, then, exactly how much that can

bleach I am not prepared to say; it might be bleached more; we can try it and see.

Q. But do you say that the more you bleach that clear flour the lighter you can make it?

A. Judge, it gets whiter and whiter with a certain amount of treatment, but after you had it up to the point as white as it will get, then the more you bleach it after that, it doesn't whiten it, no.

Q. What relation do the impurities in there have to that?

Mr. Butler: I think this is not cross-examination, all gone over.

A. The impurities, as far as I know, do not bleach at all.

The Court: He said he would only ask two questions. Go on.

A. So far as I know the impurities, the branny particles, the germ and the woody fibre do not bleach at all with this gas; they may bleach with another gas, but not with this one, as far as I know.

Q. Therefore the branny particles, if you continued to bleach it and make it whiter as you said, would necessarily be more prominent than they were?

A. After they would be separated, yes.

At this point court took a recess until 2 o'clock P. M.

598 Kansas City, Missouri, Wednesday, June 8, 1910.

Court met, pursuant to adjournment, at two o'clock p. m., Wednesday, June 8, 1910, and proceeded with the trial of said cause, further as follows:

William Wolf, called as a witness on behalf of the government, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live, Mr. Wolf? A. Baton Rouge.

Q. What is your first name? A. William.

Q. William Wolf? A. Yes, sir.

Q. And what is your business?

A. I have been raised up in a bakery, since I was a boy.

Q. You are a practical baker? A. Yes, sir.

Q. Are you engaged in the baking business, at Baton Rouge?

A. Yes, sir.

Q. Are you one of the owners of the concern?

A. Yes, sir.

Q. And how large a bakery have you, there?

A. Why, we turn out three thousand five hundred loaves a day.

Q. Thirty-five hundred loaves a day? A. Yes, sir.

Q. Do you bake bread only, or bread and other things?

A. Bread exclusively. We make a very few Jenny cakes, —hardly ever amounts to anything.

Q. But your baking is practically, wholly confined to bread?

A. Yes, sir.

Q. Have you had any experience in the use of bleached flour? A. Yes, sir.

Q. What kind? What brand of flour was it?

A. "Seal of Minnesota", from New Prague.

Q. How much of that did you have?

599 A. I had a car, two hundred ten, or two hundred twenty barrels. I couldn't say exactly. I disremember the exact amount of the car.

Q. Was it labeled as a patent flour? A. Yes, sir.

Q. And did you have some of the same flour that was not bleached? A. Yes, sir.

Q. Now, you may tell us how the flour that was bleached worked, and how it compared with the same flour that was not bleached.

A. The flour that was bleached, the sponge—we always work sponge dough, down home. Sponge worked very fair, and got ready; and then after we made dough, everything seemed apparently dead. There was no life in it. It would not rise. Of course we gave it extra hours. More so, than we did on other occasions, and the stuff gradually came to very slow and worked unsatisfactory in every way after we made dough of it.

Mr. Smith: I move to strike out the last expression your Honor, about its being unsatisfactory in every way. That is merely an opinion, without a description of it.

The Court: Yes, you ought to state the facts.

Mr. Butler: Yes.

Q. Mr. Wolf, I didn't want you to say good, or bad, or unsatisfactory, or pleasing, but to tell us the difference between the two—how they acted in the pans.

A. The bleached and the unbleached?

Q. Yes. You may tell us, first, about the bleached.

A. Well, the bleached flour moved very slow, and, after the sponge was ready, and the dough was made, everything looked apparently dead. It appeared lifeless. Came very slow. We gave it extra hours. That was my experience with the bleached flour.

Q. Did it rise?

A. It raised very slowly. It never came up in volume, as it should have, at no time.

Q. How about the firmness of it, when it did come up? Did it remain up, or flatten?

A. It began to flatten. It never would come up fully when it was back half way before it flattened entirely we run it into the oven and baked it out.

600 Q. Now describe the same flour that was not bleached.

A. The flour that was not bleached, she came better, and there was more elasticity to the dough.

Mr. Smith: Wait. I move to strike out that expression of the witness, that it came better, and there was more elasticity in the dough, as being incompetent, irrelevant and immaterial, an expression of opinion forbidden, under the court's ruling.

The Court: Very well. I don't know how a witness could express himself, very well. Of course, that is not for me to say. The answer may stand.

By Mr. Butler:

Q. Go on, Mr. Wolf.

A. The flour that was unbleached there was more volume to it. There was more elasticity to the dough, and it held up better, and proved perfectly satisfactory, and went into the oven and held up just beautifully, and came right along, in every respect.

Q. When was this?

A. The bleached flour, I used it about April, 1909.

Q. And when did you get the unbleached?

A. It was September or October, 1909.

Q. Do you know the name of the man who was at the head of that mill? A. No, sir, I do not.

Q. Or the name of the mill? Was it called the New Prague Mill. A. Just called the New Prague Mill.

Q. And branded "Seal of Minnesota, Patent"?

A. "Seal of Minnesota, Patent".

Q. Is that the only experience you have had with bleached flour?

A. That is the only one that I can vouch for. I tested that, and was satisfied that the flour used in April was bleached, and the flour in October or September was not bleached. That is the only one that I can say positively. Still I had a similar experience about a year previous to that. Worked very much the same as the bleached flour, but I never tested it. I

601 am not in position to say it was positively bleached.

Q. But you tested both of these car loads, from the New Prague, Minnesota, man? A. Yes, sir.

Q. And one showed—

A. (Interrupting) To be bleached, and the other not.

Q. How did you test them?

A. I tested them with these acids,—poured on the flour and it reacted.

Q. How? A. By a pinkish color.

Q. By a pinkish color? That was on the bleached or the unbleached? A. That was on the bleached.

Q. Now, describe more fully that pinkish color.

A. Why, poured the acid,—just merely a drop on the bleached flour, and it would react in the pink color, and the bleached flour, we poured it on, and there was apparently no change.

Q. What was the color of the stuff you poured on?

A. It was a white acid.

Q. White, or clear? A. Yes, sir, very clear.

Q. Like water? A. Yes.

Q. Not like white paper, or chalky, but clear like water?

A. No, sir. Just like water.

Mr. Butler: I think that is all.

Cross-Examination

By Mr. Smith:

Q. One of these carloads of flour, bought in April, 1909?

A. Yes, sir.

Q. And the other, about six months later? A. Yes, sir.

Q. You don't know anything about how long that flour that you bought in April, 1909, had been milled?

A. No, sir, I do not.

Q. You don't know anything about the grade of the wheat?

A. No, sir, I do not.

Q. You don't know where it had been, in the meantime?

A. No, sir.

Q. You don't know whether it had been ground six months, or two years? A. No, sir, I don't know that.

602 Q. Or whether it had been made out of Number 2 wheat, or Number 1 wheat, or no grade of wheat do you?

A. No, sir.

Q. You don't know anything about that?

A. I am not an expert on wheat, at all.

Q. And the flour you got in 1909, you don't know anything about that grade of wheat?

A. 1909? They were both in 1909.

Q. I mean in September or October, 1909.

A. They were bought for high patents.

Q. But you don't know anything about the wheat from which it came? A. No, sir.

Q. Or how long it had been milled? A. No, sir.

Q. Or whether it was from wheat that was raised in 1909 or wheat that was raised in 1908. A. No, sir.

Q. And you don't know where the wheat was raised?

A. No, I don't know where it was raised.

Q. Nor you don't know anything about how long the flour had been ground? A. No, I do not.

Q. You don't know anything about where it had been kept in the meantime? A. No, I do not.

Q. You don't know anything about—but let me ask, do you know about the different grades of flour? A. I do.

Q. Are you able to look at flour, and tell whether it is this grade or that grade? A. I can.

Q. Straight, or patent, or clear? A. Yes, sir.

Q. Now, did you examine either of these flours to determine the amount of gluten there was in each?

A. I examined them to determine the amount of gluten, but I never weighed it, and got it accurately.

Q. You didn't note any difference that way?

A. No, sir. I separated the starch from the gluten, though, and seen how much gluten was contained.

Q. Can you tell the jury how the amount of gluten in each one compared, as to weight? A. No, sir.

603 Q. Can you tell the jury how the amount of starch in each one compared as to weight?

A. I never taken any accurate weights. I only separated the starch from the gluten, for my own benefit.

Q. Yes? And do you know anything about the first car that you got, of your own personal knowledge? Do you know how it was bleached?

A. No, sir, I do not. I am not familiar with bleaching apparatus.

Q. You don't know anything about that?

A. Not the bleachers.

Q. Who was the party from whom you got this?

A. New Prague.

Q. That is, some place up in Minnesota?

A. Yes, sir, New Prague, Minnesota.

Q. Now, could you tell, by looking at the flour, whether it was bleached or not?

A. I could not tell, not exactly.

Q. They looked all alike, did they?

A. No, the bleached flour had a chalky look.

Q. Was that apparent? A. Was that apparent?

Q. Yes,—see it, can you? A. Yes.

Q. Plain to be seen? A. Yes.

Q. Anybody could tell it? A. I don't know about anybody.

Q. Well— A. (Interrupting) I know I could.

Q. Well, a person of the intelligence and observation that you have, could tell it. A. Yes, sir.

Q. You never got any two kinds of flour—that was bleached and unbleached,—milled from the same wheat, at the same time, and tested them, did you? A. No, sir.

Q. Now, it is true, is it not, and your experience as a baker has taught you, that different flours have different strengths of gluten in them, does it not.

A. Different flours have different strengths gluten, yes.

Q. And different flours, as you work them up into bread will have different elasticity of the gluten, won't they.

A. Yes.

Q. And different flours, bought at different years and different seasons of the year—some works up into bread, better than others, doesn't it? A. Yes, sir.

604 Q. A flour coming from the same mill, at different years, some flour is better than others?

A. They have better crops, some years, than others.

Q. Yes, different grade of wheat?

A. I don't know anything about the different grade.

Q. Well, I mean different quality. Some years it is better than others? A. Yes.

Q. And the better the wheat, the better the flour?

A. Yes.

Q. It has been your experience, has it not, that, as a practical baker, some years you have no trouble getting flour that bakes up, and other years you do have trouble? That is true, is it not? A. That is true, yes, sir.

Q. And the flour you buy from one dealer will work up better than flour you buy from another dealer, won't it?

A. Well—

Q. (Interrupting) Or do all flours look alike to you?

A. No, they don't all look alike to me. Some will work better than others, but I always make it a rule to buy high patent, from a reliable miller, and I always get the same flour. Runs very much level, as a rule.

Q. Yes, but in your experience as a baker, you have found that the flour you buy from this man, this week, would work up better than you bought from another man a month ago?

A. I don't scatter my business that way. I generally deal with a reliable miller.

Q. Well, when you buy from the same mill, your experience has been that if you buy a car from him now, it may be different from one you would buy from him at a different time?

A. Well, if they had a bad crop, in that section, I usually go to another part of the state, as a rule.

Q. Yes, but you don't want this jury to understand that all flours, got at different times, from different persons, even when they are unbleached, don't all work up alike, do they?

A. No, sir.

Q. You have some that bake well, and some that don't bake so well? A. Yes.

605 Q. That is a common experience, in dealing with any commodity, isn't it? A. Yes.

Mr. Smith: I believe that is all.

Redirect Examination

By Mr. Butler:

Q. Now, as to the amount of difference that you found in this "Seal of Minnesota", when it was bleached, and what it was when it was unbleached,—is that the same amount of difference that you usually found in flours, or was it less, or greater?

A. It was a greater amount of difference. The bleached flour that I got was—I don't know—it was chalky, in color, and it was very dead, and the dough had no elasticity to it, whatever. You could pull it up and it would break off, right like that (indicating), break right off, and you take the other batch I got from [the], there was a considerable amount of elasticity to it. You could notice it, very easily, and there was a considerable amount.

O. That is, the unbleached? A. Yes.

Q. Of course, you are not familiar with these different processes of bleaching? A. No, sir.

O. All you know is about this test that you have described?

A. Yes, sir.

Witness excused.

John E. Mitchell, recalled, was examined further, and testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Mitchell, you know the New Prague Mill referred to by the last witness? A. Yes, sir.

O. Who is the proprietor of that? A. Mr. Bean.

Q. You know the Williams process?

A. Yes, sir, I know something about it.

606 Q. That manufactures NO₂, mixed with air, for bleaching, does it not?

A. I don't know anything about NO₂.

Q. You don't know anything about NO₂? A. No, sir.

Q. Does the Alsop process employ NO₂ for bleaching?

A. It employs air, modified by electricity, and I understand it contains a trace of NO₂.

Q. So, you know about that?

A. I have heard of it, yes, sir.

O. Now, this mill, at New Prague, at the time referred to by the last witness, when he got this flour, was paying your company, for that medium, was it not? A. No, sir.

Q. Hadn't it given you its note for twelve thousand dollars, to your company for permission to use the Williams process, on your claim that it used NO₂, mixed with air, and that infringed the Alsop process?

A. No, sir, that isn't correctly stated. They have given us their notes, but they have refused to pay them.

Q. Yes, but they gave you their note, and you have sued on that note, now, in the courts of Minnesota, and they are defending on the ground that the using of NO₂ mixed with air injures flour, and that it is contrary to public policy to enforce any such contract.

Mr. Smith: Now, I object to that as incompetent, irrelevant and immaterial, and not the best evidence, and intended deliberately for a stump speech. Yes, sir.

By Mr. Butler:

Q. Now, let us find out whether the Alsop Company—

Mr. Smith (interrupting): Wait. I want my objection ruled on—incompetent, irrelevant and immaterial, not the best evidence.

The Court: Now, you are in a contest as to who should have the last word.

Mr. Smith: I made my objection.

The Court: Yes, your objection has been noted. Anything further in the matter? I doubt very much whether
607 anything is gained by these wrangles. It doesn't persuade me, at least. Now, I was not following it, all the way through, Mr. Butler.

Mr. Smith: Let us have the record read. That will show it.

The Court: Oh, no.

Mr. Butler: I want to be heard on the objection. The last witness, Mr. Wolf,—

The Court: (interrupting) —testified he got this flour from this Minnesota mill?

Mr. Butler: Yes.

The Court: Some, he says was bleached, and some unbleached.

Mr. Butler: Yes, and he tested them. And his test gave the reaction that characterizes the Alsop process, which has been described as the reaction of the NO₂, or its products, introduced into the flour.

The Court: Of course. The matter of this note, and whether it was paid or not—

Mr. Butler: (interrupting) Well, I am coming to that. Now, this witness is called for the purpose of ascertaining, if we can, and we have been trying to, from the beginning, whether this particular Williams process employs the same medium, so that this jury may have the benefit of the effect of the medium upon the flour. The testimony in the case is abundant that, no matter how produced, NO₂, mixed with air, has the same effect upon flour.

The Court: Well.

Mr. Butler: Now, I asked him, as an adverse and unwilling witness, whether or not NO₂ is employed in the Williams process used in the New Prague Mill.

The Court: What is the Williams process?

Mr. Butler: Why, the Williams process is nitric acid disintegrated by an electrode, which liberates the gas, and it is blown into the flour. Simply another way of making NO₂. Now, he says that he does not know.

The Witness: What NO₂ is? I believe I can explain
608 all about it, Your Honor.

Mr. Butler: And he doesn't know whether the Williams Process employs NO₂ and air. Now, I think he does.

The Court: Well, let us see if he does.

Mr. Butler: And I wanted to call his attention to his claims against this man using it, to show that he does know.

The Court: Go on, and let us see.

The Witness: I will be glad to give all the particulars, if that is what you want, Mr. Butler.

By Mr. Butler:

Q. I want to know whether or not the Williams process used by Bean, in that mill, employs NO₂ mixed with air, to bleach the flour. A. Well, all I can say—

Q. (interrupting) No, now just answer the question, yes or no, to that, is all I want.

A. Well, it has to be decided by the court. We have contended that.

Q. You believe it does, don't you?

A. I believe it does.

Q. That is the question. A. But we—
Q. (interrupting) That is all.

Mr. Smith: Now, that is not all. I want the Court to rule on my objection.

Mr. Butler: I withdraw the question.

The Court: When it has been withdrawn? That question has practically been withdrawn, because it has not been answered.

Mr. Butler: The question is not being pressed. His controversy with Mr. Bean about a note is immaterial, except when he declined to tell me whether or not NO₂ was used. I was entitled to show what he claimed in that law suit.

The Court: That question was not answered, and, if it will make the record any better, I will say the objection is sustained to the first question. Of course, there was no objection to the last question. Now, I am going to believe, until the evidence has shown to the contrary, although the jury will not take this from me as a fact, that it is utterly immaterial how NO₂ is produced.

609 Mr. Scarritt: Now, if Your Honor please, we object to that.

The Court: I must be allowed to state my own position, Judge Scarritt.

Mr. Scarritt: I understand that.

The Court: Not that I can do it so well as anybody else can.

Mr. Scarritt: But, we have the right to object to it.

The Court: I preserve the rights. I am going to hold, until I [here] evidence to the contrary, that nitrogen peroxide whether made through an Alsop process machine, or whether made by the Williams process, or whether made in the laboratory, is one and the same thing. I don't say it is a fact, but until I hear evidence to the contrary—I have been trying to find out whether you are going to put that in issue, and Mr. Elliott has three or four times declined to answer that question.

Mr. Scarritt: We object and except to the remarks of the court.

The Court: The court notes that counsel object and except to my statement.

Mr. Smith: Now, will I be allowed to make a statement on that, and give you my views?

The Court: Do you speak for yourself, or for your client?

Mr. Smith: I am stating my views, and I think I may say for my client, when I say we do not contend, and never have contended that the nitrogen peroxide is not the same, no matter how produced, but we do claim that flour treated with nitrogen peroxide in an agitator, subjected to it for fifteen or thirty seconds, is different from flour subjected to it in a closed bottle, for five minutes.

The Court: Now, we have been trying three days to get that answer. Now, let us understand that. And that is over Judge Scarritt's objection to my statement. Now, let us go on.

610 Mr. Scarritt: No, we cannot go on, until we get that settled.

The Court: I think we can go on.

Mr. Scarritt: Now, if the Court will allow me to suggest—

The Court: (interrupting) Yes, I will allow you.

Mr. Scarritt: The statement made by Mr. Smith is different, to my mind, and to ordinary men, than that made by Your Honor.

The Court: I said nothing about an agitator, nor how long agitated.

Mr. Scarritt: I know you didn't. That is what we objected to.

The Court: Oh, no, Judge. Well, go on.

Mr. Smith: We are ready to go on.

The Court: I think we are beginning to see—

Mr. Scarritt: (interrupting) You should leave those things to the jury, Your Honor.

The Court: I will do the best I can to submit the case to the jury.

By Mr. Butler:

Q. What kind of an agitator was it, in the New Prague Mill?

Mr. Smith: I object to that as wholly immaterial.

A. I don't know.

By Mr. Butler:

Q. Did you furnish them a Mitchell agitator??

A. No, sir.

Q. There is such a thing, is there not?

A. Yes, but I don't remember ever furnishing the New Prague. They don't use our process.

Q. Do you remember having seen the plant?

A. I was in New Prague Mill, trying to sell them the process, before they bought the other.

Q. You have not been there since?

A. No, sir.

611 Q. So you don't know whether they use the agitator invented by you, or not? A. I do not.

Q. You have invented an agitator, called the Mitchell agitator?

A. That is designed one. Didn't involve any invention, hardly.

Q. That is sold to mills for the purpose of agitating flour, to mix it with NO₂, diluted with atmospheric air, is it not? That is the purpose of the thing, is it not?

A. By exposing the flour to the action of this electrified air.

Q. NO₂, mixed with air? A. I imagine that is what it is.

Q. Yes, so do I. I am beginning to suspect it.

A. I have never denied it.

Witness Excused.

A. C. Comstock, called as a witness on behalf of the government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. What is your first name? A. Archie.

Q. Archie? A. Archie C. Comstock.

Q. Where do you live? A. Ellsworth, Kansas.

Q. In what county is that? A. Ellsworth County.

Q. How far from this city?

A. Well, I think it is about two hundred twenty-five miles.

Q. About two hundred twenty-five miles? What is your occupation?

A. I am head miller and mill manager of the Ellsworth Mill.

Q. How long have you been engaged in that business?

A. I have been head miller for four years, and head miller and mill manager for nearly two years.

Q. What is the capacity of the mill?

A. Four hundred barrels.

Q. Four hundred barrels per day? A. Yes, sir.

Q. Where do you get your wheat supply?

612 A. Well, locally, we have a line of twelve elevators, that range about one hundred seventy-five miles,—probably a hundred and fifty miles, to the farthest points. It is through the hard wheat belt.

Q. Are you familiar with the wheat known as Turkey hard?

A. I am.

Q. As raised in Kansas and Nebraska?

A. I am, as to the wheat raised in Kansas. I am not familiar, though, with wheat raised outside. I never had occasion to buy wheat outside of our own territory. That is, very much.

Q. It is the same kind of wheat, isn't it—the Turkey hard—in Kansas and Nebraska? A. I think so.

Q. Are you familiar with the wheat described as yellow berry?

A. I have, a few times, had a very little of it mixed with wheat that we bought, east of us, but it was only a mixture, and a small per cent.

Q. Sometimes comes mixed with the Turkey hard?

A. Yes, sir.

Q. Grows with it, does it not?

A. Well, in our vicinity I don't think there is very much of it grown.

Q. But I mean, where it is grown. A. Yes, sir.

Q. Where the yellow berry does grow, it grows from the same seed, with the Turkey hard? A. Yes, sir.

Q. I understand those to be the facts, without dispute.

A. Yes, sir.

Q. Now, do you bleach the flour at your mill? A. We did.

Q. When did you commence bleaching?

A. A little over two years ago.

Q. And do you still bleach, there? A. No, sir.

Q. What process did you use? A. The Williams process.

Q. You may describe the essential features of that process.

A. Well, it is this: nitric acid is used in a cell with two electrodes, projecting through and the acid created is blown, by a blower, into the agitator—conveyors, as we used there.

Q. Do fumes rise from nitric acid, into which are introduced the electrodes? A. Yes, sir.

613 Q. And what is done with the fumes arising?

A. What was the question?

Q. What did you do with the fumes that rise from the nitric acid, into which is introduced the electrodes?

A. It is blown into the flour—agitator, or conveyors, and mixed with the flour.

Q. This gas that rises, is mixed with the flour?

A. Yes, sir.

Q. How far from your agitator was your generator of this gas? A. About four or five feet.

Q. Now, what kind of an agitator have you?

A. It was wooden conveyors—in wooden boxes. Practically air-tight boxes.

Q. Now, during the time that you employed this bleaching process, did you bleach all the flour that you made there?

A. No. There was some of our customers that didn't want their flour bleached, and which we never bleached for them.

Q. Well, what proportion, about of your output did you bleach?

A. Well, at one time we were bleaching probably eighty per cent of the total output.

Q. Now, what effect does the treatment of the flour, in this agitator, with the gas mixed with the air, have on the color of the flour?

A. Well, it whitened the flour, although it was a dead, flat white, and it did not have the bloom that unbleached flours have.

Q. Now, as to the amount of whitening, or reduction. Was that affected by the amount of gas employed, either by concentration of the mixture, or by lengthening the time of exposure in the agitator?

A. Yes, sir. It was governed by the amount of gas used. Of course, up to a certain extent. There is a limit that, when that is exceeded, of course, the flour turns yellow again.

Q. That is, the bleaching, or whiteness would increase, as the amount of gas employed up to a certain point?

A. Yes, sir.

Q. And after that point, the flour turned yellow?

A. Yes, sir. Where it was exposed to extremely hard bleaching, or exposed for several days, the flour would turn yellow, or sulphur color.

Q. Did you have any opportunity to observe the effect
614 of this medium—that is, air and gas mixed which you mingled with your flour, upon iron, either in the agitator, or leading to it?

A. No sir. We used rubber hose for conducting the gas from the cell to the conveyors.

Q. What kind of a hose was it?

A. It was a three-ply, best grade rubber hose that I could buy. After they had been on about four or five months, they became clogged up inside, and, on examination of it, I found that they had rotted so I could break them in two with my hands.

Q. After four or five months? A. Yes, sir.

Q. Now, did you also have opportunity to see the flour, either in the agitator or your spouts, that was exposed a long time—flour that did not pass along, stopping in angles, or corners, or things of that sort? A. Yes, sir.

Q. What came over that flour, if anything?

Q. Well, it turned color as I have described. It was sulphur colored, as near as I could describe it.

Q. And the color of ordinary, merchantable sulphur?

A. Yes, sir.

Q. Now, with respect to this gas, was there an [order] to it?

A. Yes, sir.

Q. And, when the agitator was opened, where it was employed, could such odor be detected? A. Yes, sir.

Q. How about the [order] about the mill?

A. Well, it could be detected.

Q. Anywhere in the mill, where you were using it?

A. Well, especially on the floor where the bleacher was used.

Q. Now, how about the packing room where the flour went, after it left the agitator?

A. Well, I never noticed it up there, in the warehouse, after it had been sacked.

Q. But, in the packing room, itself, as it was being sacked?

A. Oh.

Q. And as it came freshly from the agitator.

A. You mean from the packer?

Q. Yes. A. Yes, sir, it was noticeable.

615 Q. But, in sacks, themselves, you never gave that any attention? A. I never detected it.

Q. Did you make patent flour at that mill?

A. Yes, sir.

Q. And any other kind? A. Yes, sir.

Q. What other kind?

A. Made straight, clear, and low grades.

Q. Did you bleach all?

A. I have bleached all grades, excepting the low grades.

Q. You bleached the patents, straight, and clear?

A. Yes, sir.

Q. What percentage was included in your low grades?

A. From three to five per cent.

Q. So, you bleached from ninety-five to ninety-seven per cent of the yield of the wheat? A. Yes, sir.

Q. What did you call straight flour? What percentage?

A. Well, the total amount of the flour extracted from the wheat, excepting about the three or five per cent, as I mentioned, of low grades.

Q. So, when you ran it all together, ninety-five to ninety-seven per cent of the total yield, you called that straight?

A. Yes, sir.

Q. Was the low grade sold as flour, food for human beings, or was it put into the animal feed,—the bran and shorts?

A. It was sold as food for human beings.

Q. Is that sometimes called the "red dog" or is there in your process a distinction between the low grades and the red dog?

A. Yes, there is a distinction between them. We don't make the red dog separately.

Q. You don't separate them? A. No sir.

Q. You let that run off with the shorts? A. Yes.

Q. You separate your shorts and bran? A. Yes, sir.

Q. And the red dog would be included in the shorts?

A. Yes, sir.

Q. And that, you say, just above the red dog, you sold separately as flour, and sold it unbleached? A. Yes, sir.

Q. That contained impurities, such as bran, and germ and fluff, and so forth? A. Just the lower grades.

Q. The lower grades? Now, before bleaching, I want
616 to get the relation of colors of your patent, and clear, and straight. Which was the whitest of the three before bleaching? A. The patent.

Q. Next? A. Straight.

Q. Next? A. Clear.

Q. Was there much difference in the color, before bleaching? A. Yes, sir.

Q. And, in what step was the greatest difference—between the clear and the straight, or between the straight and the patent? A. Between the clear and the straight.

Q. What percentage of patent? Did it make about the same percentage all the time? A. Yes, sir.

Q. And what percentage of patent?

A. About eighty per cent—eighty-five.

Q. And, of straight?

A. Do you mean before the bleaching?

Q. Yes, I mean before the bleaching.

A. Well, we made from about seventy-five to eighty per cent.

Q. Seventy-five to eighty? A. Yes, sir.

Q. And then straight? How much would that be?

A. That would be ninety-five to ninety-seven per cent.

Q. Ninety-five to ninety-seven? And the clear would be from twenty to twenty-five? A. Yes, sir.

Q. Or, fifteen to twenty, would it, if you count the low grade as five? A. Yes, sir.

Q. Counting the low grade as five, the clear would be fifteen to twenty? A. Yes, sir.

Q. Now, if you bleached the straight, and compared it with the color of the patent, not bleached, could the straight be made as white as the patent—the straight, bleached, be made as white as the patent, unbleached? A. Yes, sir.

Q. Could the clear, bleached, be made as white as the patent, unbleached? A. Well, hardly.

Q. Could it be made as white as the straight, unbleached?

A. Yes, sir, it could be made very similar.

Q. Bleaching would make the clear, as respects color,
617 look very similar to a straight? A. Yes, sir.

Q. And a straight very similar to a patent?

A. Yes, sir.

Q. Now, after bleaching, what were your percentages in the bleaching. A. About eighty-five per cent.

Q. Patent? A. Yes, sir.

Q. The straight would remain the same? A. Yes, sir.

Q. Or did you increase that?

A. How is that? No.

Q. Did you increase the straight—cut the low grade smaller? A. No, sir.

Q. You left that ninety-five to ninety-seven? And your clear would be ten? That would make ninety-five and five low grade? A. Yes, sir.

Q. Now, in case of flour that is made from wheat that is new, that has not been stacked, or permitted to go through the sweat, before or after thrashing—what is the character of that flour, as respects color, and the flour that that same wheat would make, under like conditions, if it had gone through the sweat?

A. Flour made from the wheat that has not gone through the sweat is darker in color and decidedly so.

Q. Now, supposing that flour from this new wheat which had not been sweated, had been bleached by this gaseous medium, and appropriately bleached—what would its appearance be, as compared with flour made from the same wheat that had been aged or conditioned by going through the sweat?

A. It would be very similar in color.

Q. The bleaching would make them similar—make them more alike in color? A. Yes, sir.

Q. Now, as respects flour that is freshly milled, as compared with the same flour that has been stored and aged and conditioned for some weeks or months, what is the relation of color?

A. The flour that has been aged is improved in color.

Mr. Smith: I move to strike that out, Your Honor, as incompetent.

Mr. Butler: It may go out.

The Court: Stricken out.

618 By Mr. Butler:

Q. Now, the relation of color—that would be as to likeness?

A. It would be whiter, flour made from wheat, after it had been aged for several weeks.

Q. Would be lighter than it was when it was freshly milled?

A. Yes, sir.

Q. Now, if the freshly milled flour be bleached appropriately, how will its appearance compare with what it will become in natural aging?

A. It could be made as white, although it would not have the bloom that the aged flour would have.

Q. It would not be exactly the same in color as aged flour?

A. No. It would be very similar, until one not experienced would not be able to tell the difference.

Mr. Smith: Well wait. I object to that. I object to his testifying as to what any one would not be able to do. That is conclusion of the witness, incompetent, and improper.

The Court: Objection sustained.

By Mr. Butler:

Q. Have you, yourself, ever had any means of comparing the dough-making qualities of flour, bleached and unbleached?

A. Yes, sir.

Q. Where? In your mill, there? A. Yes, sir.

Q. Have you a laboratory there?

A. Yes, sir, I have Koellner equipment.

Q. That is, K-o-e-l-l-n-e-r; is that the way you spell that?

A. Yes, sir.

Q. Koellner's method? A. Yes, sir.

Q. Now, what effect, if any, has bleaching upon the dough-making qualities of flour—take the same flour, before you treat it with this gas and air, and after you treat it.

A. Bread made from a bleached flour hasn't got the flavor.

Mr. Smith: Well wait. I object to that, your Honor, as incompetent, under Your Honor's ruling.

619 By Mr. Butler:

Q. Well, has it got the same flavor?

Mr. Smith: He is making comparative tests.

The Court: I suppose he may say whether it is the same flavor.

Mr. Scarritt: We make the same objection.

Mr. Smith: Well, I guess he can, under your Honor's ruling—he can say it wasn't the same. I believe that is Your Honor's ruling.

The Court: Go on, Mr. Witness, and tell us.

A. In fact, it lacks the flavor that the—

Mr. Smith: (Interrupting) Now, I move to strike that out, Your Honor. I object to that. That is an opinion of the witness.

The Court: We will see if it has any flavor, or no flavor. I don't know as there is much difference in this, after all.

By Mr. Butler:

Q. Go on.

A. The flavor is not noticeable, so much.

Q. Of the bleached? A. Yes, sir.

Q. Now of the unbleached? How is it?

A. Well, it is noticeable.

Q. Can you describe it? The taste is very hard to describe, but you must compare it with something else, and every man, would perhaps in degree be a standard for himself, but can you describe the taste of the bread made from the unbleached flour?

A. The bread from the unbleached flour has a nutty flavor—rich flavor.

Q. Now, bread made from the same flour, after it has been through the agitator, mixing it with this gaseous medium—has that a nutty flavor? A. No, sir.

Q. Now, as to the color of the two breads. Which is lighter in color, if either one is?

A. The bread from the unbleached flour has more of a yellowish tint, while the bread from the bleached flour is more of a grayish color.

Q. Now, as to the character of the dough, when you are making it under the same conditions, the same flour, 620 before it has been through that agitator, filled with this gas and air, and more of the flour that has been through it? How about the dough, or the elasticity and toughness, or strength?

A. The dough seems to be weaker, made from a bleached flour, than that made from an unbleached flour.

Q. Have you observed anything about the comparative keeping qualities of the two breads, one made from the bleached and the other from the unbleached? A. No sir.

Q. Which molds first, or anything of that kind?

A. No, sir.

Q. Have you observed anything of the changes that come over the same flour, one being bleached and the other being unbleached? You have told us that the unbleached changes and improves in color, and so forth. Now, how about the bleached? Have you observed that?

A. No. I have never been able to detect any difference in the unbleached, or, rather the bleached flour.

Q. You have never been able to determine any change, on aging—after lapse of time, after bleaching? A. No, sir.

Q. When was it you discontinued bleaching?

A. It was sometime in April, 1909.

Q. And why?

Mr. Smith: Oh, I object to that as immaterial, and irrelevant, as to why.

The Court: What was the situation?

Mr. Smith: He asked the question why he quit bleaching in April, 1909. I objected to that, for the reason that it is immaterial.

The Court: Oh, I think that is immaterial.

By Mr. Butler:

Q. Well, don't answer until I ask the same questions that the other gentlemen have, once or twice. Did the bleached flour give satisfaction to your customers, or were complaints made?

Mr. Smith: I object to that as immaterial.

The Court: Objection sustained.

621 By Mr. Butler:

Q. Now, did you hear the testimony of Mr. Overton Tucker, who was the miller who milled the flour which was seized,—were you in court when he testified?

A. I heard a part of it, yes, sir.

(Recess taken for five minutes.)

Q. Now, assuming that the wheat which was used to make this flour that was seized, was Number 2, Turkey hard wheat, which had mixed with it, from ten to thirty per cent of yellow berry, I will ask you, in your opinion, whether or not that is first quality hard wheat.

A. No, sir. I don't think it would be considered first quality hard wheat, if it had a mixture of the yellow berry with it.

Mr. Butler: I think that is all.

Cross-Examination

By Mr. Smith:

Q. Do they raise any hard wheat in your country?

A. Yes, sir.

Q. Do you have any of what you call the yellow berry in the wheat down there? A. No, sir, not in our county.

Q. Sir? A. Not in our county, that I have ever seen.

Q. Not in Ellsworth County? A. No, sir.

Q. What is the fact about the wheat that is grown in Ellsworth County? Does an ordinary hard wheat generally contain more or less of what you term yellow berry?

A. No. There is some of it that has a slight mixture, but as a general thing, it is strictly hard wheat.

Q. Oh, yes. Well, yellow berry is a hard wheat, isn't it?

A. I understand it is.

Q. Well, don't you know?

A. I never milled it separately.

Q. Did you ever see any yellow berry wheat?

A. Yes, sir.

Q. Mixed in with the turkey-red, isn't it? A. Yes, sir.

Q. All grown in the same field, isn't it? A. I suppose.

Q. Grown from the same seed, isn't it?

A. I don't know.

622 Q. Do you know whether or not, if you sowed the turkey-red wheat, of the purest kind, that some of the grains, or some of the heads of wheat that grow from them would contain what you term yellow berry? Do you know that?

A. No, sir.

Q. Well, do you know whether it is true or not, or do you mean you don't know anything about it? A. No, sir.

Q. Well, which is it? Do you know anything about it? I am after your knowledge now.

A. The wheat that is raised through our country—

Q. (Interrupting) No, that isn't my question, now. Do you know whether or not wheat that is grown from turkey-red wheat, whether heads of wheat will or will not, some of them, contain some grains of yellow berry? Do you know that? A. No, sir.

Q. Do you know it is true or not? A. No, sir.

Q. Do you know anything about that? Now, I am after your knowledge—not your supposition, but your knowledge. Do you know anything about it.

A. The wheat that is raised in our county is strictly hard wheat.

Q. What is it? A. Is strictly a hard wheat.

Q. What is? A. That is raised in our vicinity.

Q. Well, doesn't that hard wheat contain some yellow berry? A. No.

Q. None at all? A. No, sir.

Q. Are you prepared to say that the yellow berry is not a hard wheat? A. I think it is a hard wheat.

Q. But you don't raise any of it in your vicinity?

A. I understand it is hard, yes.

Q. Sir? A. I understand it is hard wheat.

Q. Yes, but do you understand that the wheat that is grown in your vicinity—that, in the hard wheat that is raised there, there is none of the yellow berry in the wheat?

A. No, sir, there is not.

Q. None at all? A. None to speak of.

623 Q. Where did you ever get any yellow-berry wheat?

A. We have had a few cars shipped from Salina to us.

Q. Kansas? A. Yes, sir.

Q. You never bought any Nebraska hard wheat?

A. No, sir.

Q. You don't know anything about the wheat that is raised up there? A. No, sir.

Q. Never have seen any of it? A. No, sir.

Q. Now, your mill has a capacity of four hundred barrels a day, you say? A. Yes, sir.

Q. How long has that mill been equipped?

A. It was remodeled about seven years ago.

Q. How many rolls, have you? A. Twelve double stands.

Q. How many corrugated rolls? A. Five double stands.

Q. And how many of the smooth?

A. It would be seven double stands, smooth.

Q. Over how many of these rolls do you pass your flour?

A. We have five breaks. It is a five-break mill.

Q. When do you begin drawing off patent flour?

A. On our sizing stock.

Mr. Butler: I didn't get that phrase. What was that?

(Last answer read by the reporter)

The Witness: Sizing is the first break.

By Mr. Smith:

Q. How many purifiers do you have? A. Seven.

Q. After your wheat has gone over the first break, do you draw off any of the flour? A. Yes, sir.

Q. What do you call it? A. First-break flour.

Q. Well, but in which of these divisions that you gave Mr. Butler does that go? A. It goes into the clear.

Q. After it goes over the second break, how about it?

A. That goes either to clear or patent.

Q. After it goes over the second break, part of it is patent, is it? A. It can be thrown either to patent or clear.

624 Q. Yes, but you throw it pretty much into the patent, do you? A. Yes, sir.

Q. After it goes over the third break?

A. Sometimes we throw that into the patent.

Q. Sometimes you throw that into the patent.

A. Yes, sir.

Q. Well, how does it come you do sometimes, and not at all times? A. Well, it depends upon the quality of the wheat.

Q. Depends upon the patent you are going to make?

A. Of the wheat milled.

Q. Does it depend anything on the per cent of patent you are trying to make? A. Yes, sir.

Q. And you don't make the same per cent of patent all the time, do you? A. Well, not all the time, no.

Q. Between what per cents does your patent vary?

A. Between seventy-five and eighty-five per cent.

Q. Now? A. How is that?

Q. Now? Are you making some eighty-five per cent patent now? A. Yes, sir.

Q. Aren't you making more than that, now, out of some wheat? A. No, sir.

Q. Eighty-five per cent is your limit, is it? A. Yes, sir.

Q. But you are now making some eighty-five per cent patent, are you? A. Yes, sir, very little.

Q. Good flour, ain't it. A. How is that?

Q. Good flour, isn't it?

A. Well, it is not patent flour, no. No, it is not patent flour.

Q. Well, you said it was eighty-five per cent patent, did you not? A. It is called patent.

Q. You call it patent, don't you? A. Yes, sir.

Q. Sell it as patent? A. Yes, sir.

Q. Goes out of your mill as patent flour, doesn't it?

A. Yes, sir.

Q. And it is eighty-five per cent of the whole output, isn't it? A. Yes, sir.

625 Q. And yet you say it is not patent flour?

A. It is not middlings of the flour.

Q. I didn't ask you that. Is that patent flour?

A. Patent flour is—

Q. (interrupting) Just answer my question. Is that patent flour? A. No, sir.

Q. You sell it as patent? A. Yes, sir. The sack calls for patent.

Q. As it is branded, it goes out? You say it is branded patent flour, isn't it? A. Yes, sir.

Q. And yet you say it is not patent flour? Is that right?

A. It is not—

Q. Is it patent flour? That is the question. Is it?

A. It isn't middlings flour.

Q. I didn't ask you that. Is it patent flour?

A. Patent flour is made from purified middlings.

Q. Is this made from purified middlings? A. No, sir.

Q. And yet, you brand it as patent, and send it out as such, do you? A. Yes, sir.

- Q. Now, when did you put your Williams bleacher in.
- A. About two years and a half ago.
- Q. And you used it, I believe you said until April, 1909.
- A. Yes, sir.
- Q. And during that time you said you bleached for those who wanted it? Was that it? Was that what you said?
- A. Yes, sir.
- Q. Well, how did you ascertain whether they wanted it bleached? Ask them? A. We started to bleach for all of them, but the majority of them objected.
- Q. Some of them didn't want it bleached? A. No, sir.
- Q. Could they tell whether or not it is bleached?
- A. Yes, sir, I think so.
- Q. That is easily determined, is it? A. Yes, sir.
- Q. Anybody who is at all accustomed to handling flour can tell whether it is bleached or not?
- 626 A. Yes, sir, I think so.
- Q. So, any of your customers who you sent flour,—any customer who is accustomed to handling flour, can tell, by handling it, whether it is bleached or not?
- A. I don't know as the customers could? Any person who is experienced in handling flour.
- Q. Yes, sir, any person accustomed to handling flour, they can tell, can't they? A. An expert can, yes, sir.
- Q. A man who is accustomed to buying flour, can tell whether it is bleached, can he? A. Yes, sir, I think so.
- O. Easily? Easily, can't he? A. I think so.
- Q. Now, when you were running your bleacher, you never used anything but the Williams process? A. No, sir.
- Q. And when you were running your bleacher, did you bleach all the grades of flour?
- A. All excepting the low grades.
- Q. Well, is that what you called the clear, or the red dog?
- A. No, sir.
- Q. Sir? A. No, sir. It is neither one.
- Q. What was it?
- A. It is about five per cent of the lower grades, such as Dust and Fluff.
- Q. Now, is that what every other miller calls "red dog"?
- A. No, I don't think so.
- Q. Do you make anything at your mill that you call "red dog"?
- A. Some millers call it "red dog" and some shorts.
- Q. Yes, that is what I think. You call it flour, don't you?
- A. Sir?
- Q. You call it your lowest grade of flour?
- A. What—red dog?
- Q. Yes. A. No, sir.

Q. What do you call it? A. The red dog?

Q. Yes? A. We call it shorts. It goes with the shorts.

Q. What per cent shorts do you get out of yours?

A. About—well approximately twenty-five per cent.

Q. When you were making a patent flour, how many grades of flour did you make?

A. Two grades—that is, three, with the low grades.

627 Q. Well, all right. When you were making a patent flour, you drew off a certain per cent of it, and you called it patent, did you? A. Yes, sir.

Q. And, what per cent, now, did you call patent?

A. Well, from seventy-five to eighty-five per cent.

Q. Eighty-five per cent? When did you [being]?

A. Well, we have always done that.

Q. You have always done that, as long as you have run the mill, you have made as high as eighty-five per cent?

A. No, sir. I was thinking of this patent.

Q. This mill, that is. How long have you been running this mill? A. Six years.

Q. And, as long as you have been running this mill, you have been making from time to time an eighty-five per cent patent, have you?

A. No, sir, not until the last two or three years.

Q. All right. During the past two or three years, then, and up to the present time, you have been making from time to time, an eighty-five per cent patent, haven't you?

A. Yes, sir.

Q. And, selling it as such? A. Yes, sir.

Q. Now, what per cent, when you are making a patent, do you run into the clear?

A. Well, from ten to fifteen per cent, approximately.

Q. And then you have another grade still?

A. How is that?

Q. Do you have another grade, still, after that, when you are making a patent flour?

A. I should have said from fifteen to twenty.

Q. All right. Do you have another grade after that?

A. Ten to fifteen. That is approximately what it is.

Q. Then, do you have another grade?

A. The low grades, clear and patent.

Q. Well your low grade flour, then, you don't call it a clear do you? A. No, sir.

Q. What do you call it? A. We call it low grade.

Q. Oh, no—you don't understand what I mean.

628 Mr. Butler: You understand what he means, I think, Mr. Smith.

Mr. Smith: All right. Just restrain yourself, and we will get along.

Q. Well, you are making a patent flour, the first part which you take out, and which you put on the market as a patent flour, you call what—patent? A. Yes, sir.

Q. And the next immediately below that, you call what?

A. Patent.

Q. And you have two? A. The grades, you mean?

Q. Yes. A. Straight flour.

Q. When you are making a patent, do you make straight?

A. No, sir.

Q. Supposing you are running a mill today, and you are drawing off a certain per cent patent. A. Yes, sir.

Q. Next to the patent, you call what?

A. When we make patent, we make no other grade—clear flour.

Q. And do you make a third grade at the same time?

A. No, not at the one time.

Q. If you are running your mill today, and grinding a patent flour, you would put eighty-five per cent of it into it, and call it a patent, wouldn't you? A. We could do that, yes.

Q. And the balance of it, you would call what?

A. Clear.

Q. And that would take all of it, wouldn't it? A. Yes.

Q. So, you have your flour divided into two classes—the patent and the clear, and you put eighty-five per cent of it in the patent, and fifteen per cent of it in the clear? Is that right? A. Sometimes, and sometimes we put seventy-five.

Q. I suppose sometimes you don't always run the same. Now, did you ever bleach this, down here, that you call the fifteen per cent clear? A. Yes, sir.

Q. What did you call that, when you bleached it?

A. We called it clear.

Q. Still called it clear? Now, if you throwed all the
629 streams into one, you call it straight, don't you?

A. Yes, sir.

Q. And you have bleached that, haven't you? A. Yes, sir.

Q. Now, there is a difference between the color of a patent and the clear, before you bleach them, isn't there?

A. Yes, sir.

Q. That difference is very marked, isn't it?

A. Yes, sir.

Q. Now, anybody can tell that, that has got good eyes, can't they? A. Yes, sir, I suppose so.

Q. Now, what is the difference in the color?

A. The patent is whiter than the clear.

Q. The clear has specks of bran?

A. No, no bran, but it has not the granulations. It is soft.

Q. It is darker colored, isn't it?

A. It is darker colored, yes, sir.

Q. And the granulations, and the parts of the white berry, and the little particles of bran that usually get in there are in what you call the clear, and that is what makes it inferior?

A. There is a little fibre in the clear, yes, sir.

Q. Now, the difference in the color between those, is well defined, isn't it? Anybody can see it? A. Yes, sir.

Q. Now, let us assume you bleached both of those. Isn't the color equally well defined, as it was before, between your patent and your clear? A. Yes, sir, there is—

Q. (interrupting) It makes your patent whiter, doesn't it?

A. Yes, sir.

Q. And it makes your clear whiter? Isn't that true?

A. Yes, sir.

Q. And the difference between them is just as discernible after it was bleached, as it was before, isn't it?

A. Well, I don't know as a fact as it is.

Q. Well, you can readily discover the difference between the patent, after it is bleached, and the clear, after it is bleached? A. Yes, sir.

Q. The difference is very marked, isn't it?

A. Yes, sir.

630 Q. Anybody can see it, can't they? A. Yes, sir.

Q. Now, the color of the flour, after it is bleached, you say is a sort of a dead, didn't you? A. Flat color.

Q. Well, "flat" doesn't describe color to me very well.

A. Well, it is the chalky color.

Q. Now, let us take the patent flour which is bleached.

By Mr. Butler:

Q. What was it you said?

A. The chalky color—the bloom.

By Mr. Smith:

Q. Now, take the patent flour that you make—your eighty-five per center, before you bleach it. What is its color?

A. Well, it has a bloom—a sort of a very light, creamish tint.

Q. All right. Very marked, is it? Well defined?

A. Yes, sir.

Q. Now, let us take some of that clear flour, and bleach it. What is the color of that?

A. Well, it is whiter. It comes up nearer—

Q. (interrupting) Now—

Mr. Butler: (interrupting) Now, wait a minute Mr. Smith.

By Mr. Butler:

Q. You said it came up nearer. What were you going to say?

Mr. Smith: I beg your pardon if I broke in when you were talking.

A. It comes up nearer the patent, by bleaching it.

By Mr. Smith:

Q. Does it have any of that creamy color of the patent?

A. No, sir, not so much so.

Q. Does bleaching give it any of that creamy color?

A. No, sir.

Q. Gives it more of a dead color, doesn't it? A. Yes, sir.

Q. Now, the unbleached patent doesn't have any of that dead color, does it? A. Unbleached patent, you say?

Q. Yes? Doesn't have any of that dead color, does it? It has a nice, fluffy, creamy color? A. It has the bloom.

631 Q. Now, when you bleach the clear, does it give it that clear bloomy color? A. No, sir, doesn't have that.

Q. No, sir? Just has sort of a chalky, dead color?

A. Yes, sir.

Q. So, the difference between the unbleached patent and the bleached color would be very well defined, wouldn't it—very observable? A. Not so easy.

Q. Why? Does the unbleached patent have some of that dead color to it?

A. No, sir, but the clear is whitened so much so—brought up so near the color of the unbleached patent, that [is] is harder to detect the difference.

Q. Well, do you have any trouble about detecting the difference? A. No, sir.

Q. Do you know of anybody that does?

A. Well, not that I can call to mind, at present.

Q. You don't know of anybody that has any trouble to detect an unbleached patent flour, from a bleached clear, do you? A. I don't think of any one, at present.

Q. No? I guess not. Now, you say you sometimes bleached your straight flour? A. Yes, sir.

Q. What is the color of straight flour, before it is bleached?

A. Well, it is a little bit darker than the patent flour.

Q. If you take a patent and a straight and a clear, unbleached, would you have three different colors?

A. Yes, sir.

Q. If you took a patent and a straight and a clear, bleached, would you have three colors?

A. You would, but the difference would be so slight that it is hard to detect.

Q. But you can detect it easily, can't you?

A. I think so.

Q. Well, can't other people detect it as easily as you?

A. I suppose if they are familiar with flour, they could.

Q. Yes? Sure. Now, in the unbleached, either the patent, or the straight, or the clear there is none of this chalky, dead color that you were talking about, is there?

A. How is that?

632 Q. Read it.

(Last question read by the reporter.)

Q. Now, unbleached?

A. No, no, sir. It has the natural color.

Q. Just the natural color? A. Yes, sir.

Q. Now, flour that has been freshly milled, and before it has stood in the mill, what is its color? Does it have any of this chalky, dead color?

A. Flour that has stood in the mill?

Q. No, before it has stood in the mill—freshly milled.

A. It is a little darker than flour that has aged.

Q. For a while after, after it has aged, or stood in the mill, for a while, it does not have any of this chalky, dead color?

A. No, sir.

Q. Then, it doesn't look anything like bleached flour, does it? A. It is whitened.

Q. Yes, but bleached flour has this chalky, dead color, didn't you say? A. Yes, sir.

Q. And the unbleached flour, even though it has stood in the mill, don't have any of that chalky, dead color, does it?

A. No, sir.

Q. So, the distinction between bleached flour and unbleached flour that has stood in the mill, is readily discernible, because one has a chalky, dead color, and the other don't. That is true? A. Yes, sir.

Q. You can tell the difference, can you?

A. Yes, sir.

Q. Well, can other people tell as easily as you?

A. Yes, I suppose, if they are experienced.

Q. Yes? So any person who has had experience in handling them, could readily detect the difference between flour that is aged in the mill and the bleached flour, by reason of the fact that one has a chalky, dead color, and the other hasn't? Is that true?

A. I suppose so, yes.

Q. Now, you talked something about some dough and some baking. What do you mean by "nutty flavor"?

Mr. Butler: I didn't hear that, Mr. Smith?

633 Mr. Smith: I asked him what he meant by "a nutty flavor." We have heard a good deal about a nutty flavor, and I want to find out what a nutty flavor is.

A. It is a nut flavor.

Q. That is all you can say about it, is it?

A. As nearly as I can explain it, yes, sir.

Q. Is that the best description you can give of that? Tell the jury. I think we all want to know what you mean by a nutty flavor.

A. Well, it is a rich taste, which is absent in the presence of the bleached flour, or bread made from the bleached flour.

Q. Do you think if I handed you some bread, here, that you could tell whether it was made out of bleached or unbleached flour?

A. I don't know as I could.

Q. What do you think about it?

A. I don't know as I could—it has been a long time since I tasted unbleached flour bread.

Q. Then, wouldn't the taste of bleached flour be so new to you, you could detect it easily?

A. I don't know as to that.

Q. You don't know whether you could or not? You would hate to tackle it, would you?

A. No, I will try it.

Q. All right. We will bring you some bread, here, tomorrow and have you try it.

Q. Now, in the bread that is made from unbleached flour, you say the color is different from the bread made from bleached flour? A. Yes, sir.

Q. That is readily discernible, is it?

A. Well, there is not such a great difference, although there is a slight difference.

Q. Well, you can tell by looking at bread, whether it is made from bleached or unbleached flour, can't you?

A. I can from them I have baked.

Q. Yes, because you would know before you baked it which was the bleached and which was the unbleached. But,
634 if you bought the bread down here at a restaurant or bakery, could you tell whether it was made from bleached or unbleached flour? A. I think so.

Q. Then the difference is readily observable, is it?

A. Not so readily, no; there is not so much difference but what it is hard to detect the difference.

Q. Is it?

A. The bread from the unbleached has a sort of a yellowish, creamy taste.

Q. Yes, because the one is sort of yellow and creamy?

A. Yes, sir, while the other has more of a gray color.

Q. Well, the difference between a creamy and a light grey is easily discovered, isn't it?

A. If there is enough to detect.

Q. Well, there is enough difference so you can tell easily is there not?

A. There is, in the flour I have bleached.

Q. Well, if you can tell it, other people can tell it?

A. If it is bleached sufficiently; of course, some bleach harder than others.

Q. Yes, I guess that is right.

A. Where it is slightly bleached it is that much harder to detect the difference.

Q. Coming back to this question of patent flour. Do you know of any standard that has been established by the Government, by the State of Kansas, or by anybody else, fixing a standard for patent flours.

A. I know of nothing that has been issued by the Government? There was, I believe, about two years ago, or something somewhere along there, a short patent flour meeting that was organized.

Q. Where was that organized?

A. Well, I believe it was Kansas. In fact, I don't know the details of it.

Q. Sort of a short-patent association? A. Yes, sir.

Q. You belong to the Short-Patent Association?

A. No, sir.

Q. You belong to the Long-Patent Association, if you make 85 per cent, don't you?

A. Well, if you want to take it that way.

Q. Yes? You never joined the other association, did you?

635 A. No, sir.

Q. Well, cutting out any foolishness, here, you don't know of any rule that has been established by the Government, or any department of the Government, or by the State of Kansas, or any other state, that has attempted to fix a standard of your patent flour, that you can put in the patent flour?

A. No, sir.

Q. And you never have observed the same rule, from time to time, have you? You don't have an arbitrary rule that you observe, do you? Doesn't it depend upon the quality of the wheat? A. Yes, sir.

Q. And the demands of the trade? A. Yes, sir.

Q. Your customers? A. Yes, sir.

Q. And the grade of the wheat? A. Yes, sir.

Q. And depends somewhat on the price, don't it?

A. I suppose.

Q. And you take all those things into account in determining what per cent of your flour you will put into your patent, don't you? A. Some of them, yes, sir.

Q. You generally sell your flour under a guarantee as to satisfaction, don't you? A. All of it.

Q. And that is what regulates the grade and quality, and the market, and that is what controls your color, is the guarantee that goes with it, isn't it? A. Yes, sir.

Q. Do you have your sacks branded straight, clear, patent, and so on? A. No; we have for patent.

Q. You have patent?

A. Patent on all of them so far as that is concerned.

Q. On all the sacks? A. Yes, sir.

Q. Everything that goes out? A. Yes, sir.

Q. No matter whether it is clear or straight or patent, whatever it is, it is labeled "Patent" is it?

A. Yes, sir. It is the highest patent—

Q. (Interrupting) You have got a highest, and a low
636 patent, and simply patent?

A. There is highest patent, high patent, and patent.

Q. But everything that goes out of your mill is a patent, is it? A. Yes, sir.

Q. I may ask, are you here taking an immunity bath?

A. Not as I know of.

Mr. Smith: I guess that is all.

The Witness: I will state, though, that we are not the only ones. This is quite general, in Kansas. You will find most of the millers in Kansas have the same thing, so far as that is concerned.

Redirect Examination

By Mr. Butler:

Q. I intended to ask you, in my direct examination, whether or not this flour which was seized, was labeled "Fancy Patent, This flour is made from first quality hard wheat." Assuming that Mr. Tucker told us the truth, and said that the wheat from which it was made was a hard wheat, containing from ten to thirty per cent yellow-berry, declining to say that it did not contain fifty per cent of yellow-berry; that his yield was a barrel of flour out of every four [barrels] and thirty pounds of wheat, and that ninety per cent of such flour was put in these sacks, so labeled. I will ask you whether, according to your understanding of the meaning of the terms, this wheat flour was, in fact, a "fancy patent flour made from the first quality hard wheat"?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial, if your Honor please, and calling for one expert's opinion of another expert's opinion.

Mr. Butler: No, it isn't one expert's opinion of another one.

Mr. Scarritt: And also for the reason that the gentleman has stated, or attempted to state what the witness testified to, and has not stated all the facts.

637 The Court: Of course, I don't recollect as to Mr. Tucker's testimony.

Mr. Butler: I didn't state all the facts, quite.

Q. (Continuing)—and that his weight was only 59 pounds to the bushel, and that his yield was 42 pounds out of the 59.

Mr. Butler: I didn't quite state that all.

Mr. Scarritt: Well, it is clearly without the rules of evidence, if your Honor please, for one expert to testify as to the opinion of another expert.

Mr. Butler: I didn't ask that.

Mr. Scarritt: It is incompetent, irrelevant and immaterial.

Mr. Butler: I didn't ask Mr. Tucker whether he claimed this was a patent flour. I thought the gentleman on the other side would. I think they did not. I am asking this expert—

The Court: (Interrupting) Just a moment. The state of this record is this: Mr. Butler asked this witness, in his examination in chief, with reference to what different persons could tell about comparisons of flour, how they looked, and all that kind of thing. On Mr. Smith's objection, that was stricken out. Now, the greater part of the cross-examination of Mr. Smith has been along the very line that was ruled out, on objection, with reference to how it looked, what was patent flour, and different grades, and all that kind of thing. This witness was saying what he called patent, and that these millers in Kansas, generally, are branding everything "patent" and so on. I don't see just exactly what the relevancy is, if everyone of these gentlemen of Kansas needs an immunity bath.

Mr. Scarritt: We don't—

The Court: (Interrupting) Just a moment, please, now, Judge.

Mr. Scarritt: I beg your pardon.

The Court: Yes. I failed exactly to see the relevancy of all that, but Mr. Smith has gone into that. I think it is proper re-examination, although I do think we are getting outside the issues here?

638 Mr. Scarritt: Mr. Smith didn't ask him a word about the branding of this flour.

Mr. Butler: Oh, no.

Mr. Scarritt: Or whether it was proper or not, and, besides, if your Honor please, I would like to make this suggestion: There is evidence that may be perfectly objectionable on direct examination, and the character of the evidence not objectionable on cross-examination. We all understand that. But the main proposition is that he is attempting to prove by this gentleman just what the jury has got to decide, and that is, as to the branding of this flour, and he is invading the province of the jury, in getting this gentleman to tell the jury what they ought to decide. He can state the facts, but the conclusion, it seems to me, especially when that conclusion involves one of the vital questions in the case, it is absolutely incompetent for this witness to testify to it.

The Court: Yes, but here: Now, here is the state of the record: I don't care to be commenting on the evidence, but, so far, the evidence has tended very strongly to persuade me that there is no hard and fast rule as to the percentage of any particular part of the kernel of the wheat, that makes patent flour. This witness has said that 85 per cent of many of the brands or grades of wheat, he sent out as patent flours, and thereupon Mr. Smith wanted to know if he was here taking an immunity bath; in other words, if he were here as a criminal.

Mr. Smith: That was after, your Honor, he said he had put 100 per cent of all his flour in.

The Witness: Not 100 per cent.

The Court: Now, just a moment. Don't get excited. Now, what Mr. Smith meant, was "Are you here as a criminal"?—and the witness said that the millers of Kansas generally are doing the same thing, and I haven't yet forgotten, although it was a week ago, Mr. Smith's opening statement to
639 the jury, here, as to what the evidence was going to be, but which I will not now state, unless it becomes further necessary to illustrate my views, so that, I observed particularly that this gentleman from Nebraska said he was grinding 59 pound wheat. Well, during the days some years ago, when I thought I knew something about that, I pricked my ear up at that,—that is, what kind of wheat they were grinding in Nebraska. So, now, Mr. Butler is stating these facts, and wanted to know. I don't think it is very material, one way or the other, because, if I live long enough to charge this jury, I am going to tell them a good many things, here, that in my judgment, are not material. We have spent a good deal of time for nothing in the world but experience, it seems to me.

Mr. Scarritt: Now, this witness said, if your Honor please that he did not know anything about Nebraska wheat.

The Court: I know, but anybody who knows anything about wheat, knows what a 59 pound wheat is, at least, [at least], I think so. I don't know what they may say about that. All I can recollect is what it is in Louisiana. I don't know what it is in Nebraska. Well, go on. It is immaterial. We have wasted more time, now, than the whole thing is worth.

Mr. Scarritt: What is that?

The Court: We have wasted more time now than the whole thing is worth.

Mr. Scarritt: Well, all I want is a ruling.

The Court: Well, I overruled your objection. I thought you understood that.

Mr. Scarritt: No.

The Court: Yes, quite a while ago.

The Witness: May I make a statement?

The Court: If it is offered in explanation of your testimony, you may. We don't want any speech-making.

The Witness: In regard to the patent flours, I will say that these flours are branded highest patent, straight patent, and clear patent.

The Court: Well, you said that before. There is no use repeating it.

By Mr. Butler:

Q. Now, upon the statement of facts that I have given you, founded on the testimony of Mr. Tucker, as to the kind of wheat that was used here, and the percentage of flour put in, and labeled "Fancy Patent", I will ask you whether or not it is a fancy patent? You told us in your direct examination that in your opinion it was not a flour made of first quality hard wheat.

Mr. Scarritt: Same objection.

The Court: You may answer.

Mr. Scarritt: Exception.

A. I have never seen any wheat equipment that would produce middlings to make 90 per cent patent flour. I consider patent flour flour that is made from purified middlings.

Mr. Smith: Now, I am going to object to this as not responsive to the question. He asked him whether in his opinion it was a fancy patent. Now, that can be answered by yes or no.

By Mr. Butler:

Q. What is patent flour?

Mr. Smith: That wasn't your question at all.

Mr. Butler: It is now.

Mr. Smith: I move to strike out the answer of the witness as not responsive to the question.

The Court: Well, it may be stricken out.

Mr. Butler: Well, that part, "I consider".

The Court: Well, what is patent flour?

The Witness: It is flour made from purified middlings.

By Mr. Butler:

Q. Well, the flour made by Mr. Tucker, as he described it, and as I have heretofore described it, could that much patent be made out of any wheat that you know anything about.

641 Mr. Smith: I object to that.

The Court: Overruled.

Mr. Smith: Exception.

A. No, sir.

By Mr. Butler:

Q. Now, you told Mr. Smith when you started to bleach, you bleached all of it?

A. All of our grades, excepting low grade.

Q. All of your output?

A. I said there was about twenty per cent; that we bleached about 80 per cent of our total output. Some of our customers insisted upon having the unbleached flour, and there was some we never bleached their flour for them at all.

Q. Yes? Then you told them later, a majority of your customers objected to bleaching, I understood you? A. Yes, sir.

Q. And then you quit it altogether? A. How is that?

Q. Then, soon after that you quit it altogether, did you?

A. Yes, sir.

Q. Now, Mr. Smith asked you what you could tell and what other people could tell about straight, patent and clear flour. What is the usual and customary method of examining flour, by color? Is it by comparison—the patent with the clear, and the patent with the straight, with the other, or do you look at one today, and the [—], sometime later, either today or

later on, look at another and carry the color in your eye, or must it always be done by comparison made then and there?

Mr. Smith: I object to that as leading and suggestive.

The Court: He may answer.

Mr. Smith: Exception.

A. By comparison, yes, sir.

By Mr. Butler.

Q. How about the comparison made by Mr. Ballard, here in the presence of the jury?

642 Mr. Smith: I object to that.

The Court: Objection overruled.

A. That was one method and another method is dipping the flour in water, which will make it show up more plainly, than in the dust. That is the ordinary manner.

By Mr. Butler:

Q. Now, to many of Mr. Smith's questions, you said, with respect to color, this bleached flour might be detected by you, or anyone familiar with the color of the flour, and accustomed to buying and selling and handling flour; how about housewives and consumers, without any standard of comparison, just having presented the one. What do you say in regard to that?

Mr. Smith: I object to that, no proper foundation having been laid it not being shown that he knows anything about what housewives can do.

The Court: Oh, you asked him several times couldn't anybody tell, and couldn't anybody tell, and so on, Mr. Smith. You may answer.

A. I think no one excepting an expert would be able to determine.

By Mr. Butler:

Q. Would they need a basis of comparison, or could they tell, without by looking at the flour under examination, alone, without comparing it with anything else?

A. I think not, no, sir.

Q. So that even an expert would require a basis of comparison? A. Yes, sir.

Q. You think an expert could not do it without a standard to compare to? A. I would not think so.

Q. Now, about tasting and detecting difference in taste. You were cross examined on that subject. Taste of the bread, from the bleached and the unbleached. Were the tastes com-

pared about the same time, first tasting one and then tasting the other, and then determining the difference?

A. Yes, sir.

643 Mr. Butler: That is all.

The Court: Call the next witness.

(Witness excused.)

Harry Gifford, called as a witness on behalf of the Government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Your first name? A. Harry Gifford.

Q. Where do you live? A. Aberdeen, South Dakota.

Q. You are a miller? A. Yes, sir.

Q. Have been, all your working life? A. Yes, sir.

Q. What company are you connected with?

A. The Aberdeen Mill Co.

Q. And how long have you been connected with them?

A. About twelve years.

Q. Are you the head miller there? A. Yes, sir.

Q. And before that, where did you work?

A. I went from Sheldon, Iowa, to Aberdeen and previous to that I worked in Minneapolis.

Q. Is this mill that you are working for now engaged in bleaching its flour with the fumes of nitrogen peroxide, mixed with air? A. Not at the present time.

Q. Has it ever been engaged in that business?

A. Yes, sir.

Q. When did it commence? Were you there when it commenced? A. Yes, sir.

Q. And when did it quit?

A. It quit on January 14th, 99, I think it was. It was our idea—I will have to explain a little—

644 Mr. Smith: (interrupting) No, we are not talking about our ideas. Fix the date.

By Mr. Butler:

Q. Well, fix the date.

A. I want to fix the date, so we will not make any mistakes. We stopped bleaching for the purpose of—

Mr. Smith (interrupting): No, I object to this, as wholly immaterial.

The Court: Oh, yes. Why you quit bleaching is not regarded as legitimate evidence.

By Mr. Butler:

Q. Well, by what do you fix the date? You said 99. You mean 1909, don't you, about a year and a half ago?

A. Yes, sir.

Q. Now, how long had you been bleaching?

A. Oh, I should think about five years.

Q. Did you install the bleacher in that mill.

A. Yes, sir.

Q. What particular type bleacher did you install?

A. Williams.

Q. The Williams? A. Yes, sir.

Q. Before installing that bleacher, or since you installed it, did you examine the bleaching process that bleached this flour, which was needed, called the Alsop Process?

A. Yes, sir.

Q. Did you visit mills, and see the Alsop bleacher in process? A. I did.

Q. Where?

A. Well, at Minneapolis, and then I seen one in North Dakota.

Q. And you studied the workings of it? A. I did.

Q. And finally you bought a Williams? A. Yes, sir.

Q. That is the same type bleacher that was described by the last witness? A. Yes, sir.

Mr. Scarritt: I object to this, commencing on other witnesses' testimony if your Honor please.

Mr. Butler: Well, I wanted to make it clear, without having to describe it over again.

645 Mr. Scarritt: Well, you don't have to describe it over again he can tell what he knows.

Mr. Butler: Well, I asked him whether he knows if it was the same kind of a bleacher that was described by the last witness. Now, that is the way to find out what he knows.

A. Yes.

Q. Now, did you, yourself, have opportunity to observe the effect of this bleaching process had upon wheat flour?

A. Yes, sir.

Q. How far from the shaver—the agitator, did you have your gas producer—this nitric acid with the electrode?

A. About three feet.

Q. How were they connected?

A. They were connected with a rubber hose, from the cell to a conveyor.

Q. Did you have opportunity to observe the effect of this gas, mixed with air, upon any metallic or iron substance, in the agitator, or leading to it? A. Yes, sir.

Q. What were they?

A. We had an aluminum. To connect the hose with the conveyor, we had a jar, and this had an aluminum attachment on there, screwed on, and screwed off, that—the acid in it cut that out, and the aluminum spout, you know, where the holes run down like this (indicating).

Q. Did you observe any effect upon the rubber of your hose?

A. Yes, sir.

Q. What was that?

A. Wear out an ordinary hose in about a week or ten days.

Q. And when you say an ordinary hose, you mean a hose of what strength? A. Oh, just an ordinary garden hose.

Q. A week or ten days? A. A week or ten days.

Q. Did you notice any accumulation of any substance, as the product of the fumes of the air passed from the hose into the agitator?

A. Yes. The rubber, apparently, was eaten up by the
646 acid, and made a sort of yellowish, crumbling, ashy effect, you know—burned up, is what it was.

Q. What arrangement was there for controlling the strength of the fumes, or the fume dilution?

A. We [—] a rheostat, out of lamps, and, if we wanted to make a stronger gas, we turned in an ampere, or a half an ampere—put in another lamp.

Q. How did you control the flow of atmosphere from the fumes that mixed with the flour?

A. We had a fan that was connected with this jar with a pipe, drawing from the outside, and I had a valve, that I would open or close, to give it the air.

Q. Now, have you, in the use of this bleached flour, observed the difference in effect upon flour, resulting in the diminishing or increasing the volume of atmosphere that was brought into the fumes, to go into the wheat flour? A. Yes, sir.

Q. What was the condition, in that regard?

A. Well, the more air you put in, the more it weakened the gas, and it wouldn't have so strong an effect in bleaching it—didn't show it so plain in the bleaching.

Q. Didn't bleach the flour, if diluted with air?

A. Diluted with air made a weaker solution.

Q. What effect upon the color of wheat flour did it have?

A. Made it white.

Q. Did you make different kinds of flour there?

A. Yes, sir.

Q. What?

A. We made a patent, clear, a second clear and a red dog.

Q. Patent, first clear, and second clear, and red dog?

A. Yes, sir.

Q. Did you sell the red dog for flour for human consumption? A. Yes, sir.

Q. All four kinds then you sold for human consumption? A. The whole four.

647 Q. Now, unbleached? What would be the relative color of those four grades?

A. Well, what we northern millers call a creamy, white, unbleached.

Q. And which would be lighter,—would that creamy, white, attach to all grades—the patent, first clear, second clear and red dog?

A. No, the first patent would have a more creamy color than any of the rest.

Q. Did you make more than one patent? A. No, sir.

Q. Did you have different kinds of patents—first and second on your labels? A. No, sir.

Q. Now, which is lighter, the patent, first clear, second clear, and the red dog, of course, is not white at all is it?

A. No. That is a fibrous stuff, that is not white. The patent is somewhat lighter, not so very much, either.

Q. Did you make any straight flour there? Mix it all together?

A. Yes, sir. Our straight flour is made by putting our first clear and our patent together.

Q. Now, did you change your percentages at all after you began to bleach?

A. I did. My first clear; that would also change your second clear. My patent flour, I did not.

Q. You changed the percentages as between the clear, but you maintained the percentage of your patent?

A. Yes, sir.

Q. Have you any objection to telling us what that was?

A. The patent percentage?

Q. Yes, sir. A. No, sir.

Q. What was it?

A. We make from 75 to 80 per cent of first patent.

Q. And the red, divided between the clear? A. Yes, sir.

Q. Now, before you bleached, how much per cent did you put in the first clear?

A. Oh, somewhere in the neighborhood of from 18 to 20.

648 Q. And in the second clear?

A. Well, now, I will have to figure a little on that, so I won't get mixed. Not that I wish to dodge the issue, at all, but the two—the low grades are the red dog and the second clear, and were about eight per cent.

Q. Each, or together?

A. No, together. So that you would have to take eight per cent off that clear. Of course, that is jockeyed, you understand, back and forth according to the wheat.

Mr. Scarritt: That is what?

Mr. Butler: Jockeyed back and forth.

The Witness: Maybe, perhaps, that is not the proper phrase.

The Court: Everybody here knows what that means.

A Juror: I don't.

By Mr. Butler:

Q. Now, how much percentage did you increase the first clear after you began to bleach? A. From three to five.

Q. Is there a difference in price between patent and first clear? A. Yes, sir.

Q. Between first clear and second clear? A. Yes, sir.

Q. How much is the spread, between the first clear and the second clear, usually?

Mr. Smith: I object to that as incompetent.

The Court: Oh, I think so. Objection sustained.

By Mr. Butler:

Q. Now, as to the effect of bleaching. Suppose you bleached the first clear, and left your patent unbleached. What would be the effect upon the relative appearance?

A. The first clear would look better than the patent.

Q. When you say "look better" what do you mean?

A. Better color.

Q. And when you say "better color" what color do you mean? A. Well, whiter.

Q. It would look whiter? A bleached first clear would
649 be whiter than the patent? A. Yes, in my opinion.

Q. What about the second clear, such as you made after you commenced to bleach, as compared with the patent—a bleached, second clear and the patent, unbleached?

A. Well, there isn't any comparison. That is going down so close to the tail end, it has got so much fiber in it that bleaching doesn't make much difference.

Q. That is, after you make a 75 to 80 per cent patent, and 80 to 20 per cent clear, you have a second clear that is beginning to look a little ragged?

A. Yes, sir, more like red dog.

Q. Did you bleach it and mark it and sell it as flour?

A. Yes, sir.

Q. Now, with respect to the degree of bleaching, to effect the bleaching of the patent flour. Would it require as much

or more of the bleaching reagent than it would to effect the bleaching of the second clear, we will say—the other extreme?

A. Oh, I think about the same relative amount would take about the same amount, for the same amount of flour.

Q. Now, as you bleached them all, would the colors be in the same relation, or would they be nearer together?

A. The third clear patent would be nearer together.

Q. Now, as to the color of flour made from new wheat, that has not been sweat. How does that compare with the color of flour, made from the same wheat, that has been through the sweat and conditioned?

A. Oh, the conditioned wheat improves and makes a whiter flour.

Q. And as to the quality of the flour?

A. Oh, it is better all around.

Q. It is a whiter and better flour, if it is made from the wheat that has been through the sweat? A. Yes, sir.

Q. Now, suppose, in the case of flour made from the
650 new wheat that had not been through the sweat, that was bleached—how would its appearance be, as compared with flour from the same wheat that had been through the sweat?

A. Well, the flour, bleached, and new wheat, looks as good as wheat that had been aged,—well, considerable better. It was bleached flour—white.

Q. Now, let us take the case of flour that is made from conditioned wheat, well adapted, and well conditioned for milling, to freshly milled flour. How does that compare, in color and strength and quality, with the same flour, after it has been aged and conditioned for a time, by storing, and the like?

A. Well, the aged and conditioned flour is superior in color and bread making qualities.

Q. When you say “superior in color”, what do you mean?

A. Whiter.

Q. Whiter? A. Yes, sir.

Q. Now, suppose such fresh flour were subjected to this bleaching process, what would its appearance be, as compared with the appearance of the same flour, if it had naturally aged and conditioned?

A. I should say about the same.

Q. It would look about the same?

A. About the same.

Q. Do you know Mr. Tucker? A. Yes, sir.

Q. And have known him a long time? A. Yes, sir.

Q. You heard his testimony here? A. Yes, sir.

Q. He formerly milled at Minneapolis, where you did?

A. Yes, sir. Not in the same mill.

Q. No, but in the same town. A. Yes, sir.

Q. You heard him describe this flour—the manner in which he made it? A. Yes, sir.

Q. Assuming that he testified correctly about that, I will ask you whether or not, in your opinion, the flour seized was really a fancy patent flour, made of first quality hard wheat?

651 Mr. Smith: I object to that as incompetent, irrelevant and immaterial, no proper foundation having been laid, the witness not having shown himself to be at all competent to testify as to conditions in Nebraska.

Mr. Butler: Well, perhaps the Nebraska wheat situation may be unknown to him, so I will limit the question to whether or not, in fact and truth, it was a fancy patent flour.

Mr. Smith: Same object to that.

The Court: You may answer.

A. No, sir.

By Mr. Butler:

Q. Do you have a baking plant, or laboratory, in your mill?

A. Yes, sir, the Koellner.

Q. And did you bake the flours there, before bleaching and after bleaching, from the same flour? A. Yes, sir.

Q. And under like conditions?

A. Yes, sir.

Q. Now, tell the jury what effect the bleaching had on the flour, as a result of your experience, and upon its quality for bread making, the quality of the dough, and the flavor, and odor, and volume, and everything affecting it.

A. Well, you take the unbleached flour, and it is what we northern millers call the creamy white. It maintains that, from the dust to the bread. The unbleached, that is the unbleached flour, you understand. But the bleached flour loses a certain per cent of this creamy color, and makes whiter bread than the unbleached. That is, in regard to color. In regard to texture—I never was able to see any particular difference between the two textures. The taste was a little different, and, before going into your bread, the dough of an unbleached flour is very elastic—what we call, when we dough, it comes back, good and strong. After bleaching the same flour, it is more of a pie crust—in other words, the dough will break easier. If you stretch out your dough, it will break easier than the other, showing that something has destroyed the strength of the flour? The bleaching agent has ruined the strength, to a certain extent.

652

Mr. Scarritt: We ask to have that stricken out.

Mr. Butler: What was that, Judge? My attention was called to another matter.

Mr. Scarritt: His argument, telling that it showed that the bleaching reagent had destroyed the strength.

The Court: Yes, that may be stricken out.

By Mr. Butler:

Q. Well, the bleached flour was not so strong? A. No.

Mr. Scarritt: Well, he has stated that, Mr. Butler.

By Mr. Butler:

Q. And, were the flours the same, the only difference being one was bleached and the other unbleached?

A. Yes, sir.

Q. Baked under like conditions?

A. Under like conditions.

Q. Now, you said the taste of the bread was slightly different. Can you describe that more definitely, by stating as to how one tasted and then how the other tasted?

A. Well, there was, you might say, a lack of taste in the bleached one.

Q. Now, as respects the odor or aroma, if there is such a thing, is there any difference?

A. I don't know as I—

Q. The odor, or aroma, or smell of a loaf, recently cut—is there any difference in the taste of a bleached and unbleached, or did you observe that?

A. I never observed that.

Q. Now, did you become familiar with the odor attending the use of the Alsop process,—the odor about the mill of the gaseous medium and the like?

A. Yes, I did.

Q. I mean, in your visits to other mills where the Alsop process was being used? A. Yes, sir.

653 Q. And you, of course, became familiar with the odor about your own mill? A. Yes, sir.

Q. And what do you say about that?

A. I think they were so near alike you couldn't detect them.

Q. So near alike you couldn't detect any difference?

A. Couldn't detect any difference.

Q. Now, did you observe any flour that was exposed for a considerable length of time, to this bleaching medium—any flour in the angles, or corners or spouts in your conveyers?

A. Yes, sir.

Q. What effect did the bleaching medium [—] upon it?

A. It turned them a kind of orange color, I should say—a real yellow.

Q. Did you have any experience with that flour that was over bleached? A. Yes.

Q. What was that? What observations did you make of that?

A. Well, there was a loaf of bread on my own table that had apparently a streak running through the bread, about the size of an ordinary lead pencil. It looked as if it was raw—failed to bake. I asked my wife if she had—

Mr. Smith (interrupting): Wait; we object to the conversation with your wife.

By Mr. Butler:

Q. Yes. Your attention was called to it, and you talked with your wife about it? A. Yes, sir.

Q. That would not be material.

Mr. Scarritt: I object to the whole thing. That would not have anything to do with this case.

Mr. Butler: It shows the effect of NO₂ upon the flour.

Mr. Scarritt: One loaf of bread?

Mr. Butler: Oh, no—

Mr. Scarritt: One loaf of bread, taken from receptacles with all this dust, and rust, as they call it and take and
654 put it on the stove, and bake it? I don't know anything about the cook. Might have been a string or a lead pencil he was talking about.

Mr. Butler: My recollection is, Judge that he has had a much wider range of observation on that subject, but that this was the occasion that set his thoughts in motion.

Mr. Scarritt: When we get to that, we will—

Mr. Butler: (Interrupting) Object again?

Mr. Scarritt: Yes, sir, and it certainly will be proper.

The Court: I will sustain the objection.

By Mr. Butler:

Q. Have you observed the effect of overbleaching or long exposure of the flour to this bleaching medium, upon the bread-making qualities of the flour so exposed?

A. Yes, sir.

Q. What have been your experiences—in many instances, several, or only a few? Now, I want to get the range of it first now. A. Quite a few.

Mr. Scarritt: I object to that because there is no testimony in this case, and I apprehend there will be none, that that flour

that he is talking about has been used for making bread, or for any other purpose.

By Mr. Butler:

Q. Did you see such flour made into bread?

A. Yes, sir, I did.

Q. Did you, yourself, make it into bread? A. Yes, sir.

Q. And you observed it after you had made it into bread?

A. Yes, sir.

Q. And before? A. Yes, sir.

Q. And it was flour that was made yellow by this process?

A. Yes, sir.

Mr. Scarritt: You mean the flour taken out of these receptacles and places?

Mr. Butler: Yes, where the gas was.

655 The Court: He may answer.

Mr. Scarritt: Save an exception.

A. The flour that had the streak, called my attention to this, and I baked, out of an ordinary sack of flour, with this same baking, and I still found this streak. I took 339 grams of flour, and one gram of this overbleached stuff; mixed it thoroughly, put it through the same fomentation that I did any dough, and I found this yellow streak there, as I had in the commercial bread.

Q. Where? In the bread? A. Yes, sir.

Q. Now, describe the appearance of it, and the color of it, and whether you tasted and smelled that, and so on.

A. You mean the size of the—

Q. Of the streak.

A. Well, it seemed to gather down in the loaf, as you would roll it; it would be at the bottom, and it was about the size of a lead pencil. That is as nearly as I can describe it.

Q. And you say that occurred in quite a few instances?

A. Yes, sir.

Q. Did you repeat the experiment? A. I did.

Q. And like results each time? A. Like results.

Q. Now, did you try to taste that substance that you described as the streak.

A. No, sir; not after I had put in the "dope" I didn't taste that.

Q. And when you say you put in the "dope" you mean this gram of overbleached flour? A. Yes, sir.

Q. Now, in the use of the bleaching process about mills, you may tell us whether or not there is a liability of more or less flour to be exposed for a considerable length of time, and thus become overbleached to the extent and in the manner that

these particular samples which you used in these particular experiments were bleached?

Mr. Scarritt: I object to this as incompetent, irrelevant and immaterial, not a matter of expert testimony.

The Court: I think so. Objection sustained.

Mr. Butler: It isn't expert opinion, it is merely—

656 The Court: Objection sustained.

Mr. Butler: All right. That is all.

Cross-Examination

By Mr. Smith:

Q. Have you had any experience with Nebraska wheat?

A. Not very much.

Q. Have you had experience in the year 1910 with Nebraska wheat? A. No, sir.

Q. Or of any of the 1909 crop of wheat? A. No, sir.

Q. Where do you get your wheat?

A. It is raised in South Dakota and North Dakota.

Q. What kind of wheat is that?

A. Well, it is known as hard, spring wheat.

Q. Spring wheat, is it? A. Yes, sir.

Q. Not a winter wheat? A. No, sir.

Q. It is known as hard, spring wheat? A. Yes, sir.

Q. Now, as a matter of fact, that wheat, when you grind that makes a very fine grade of flour?

A. Yes, sir. It is known as white, creamy flour.

Q. A little bit whiter than the flour that is made from the winter wheat of Kansas and Nebraska, and this section of the country down here? A. I can't speak as to that.

Q. Did you ever see flour made from the winter wheat of Kansas and Nebraska, or this part of Missouri, before the flour was bleached. A. Yes.

Q. Well, your flour is lighter than that?

A. No, I never compared them.

Q. Well, as a practical miller, without having the samples side by side, don't you know it is?

A. I wouldn't like to say.

Q. You wouldn't like to say it isn't?

A. I wouldn't like to say, one way or the other.

Q. Now, in your four grades of flour, you include what millers generally term "Red Dog", don't you? A. Yes, sir.

Q. You put that out as a flour? A. Yes, sir.

657 Q. And, in figuring your percentages, you got an 80 per cent patent, figuring on the basis of the Red Dog being flour, haven't you? A. Yes, sir.

Q. So, if you didn't regard Red Dog as flour, and simply figured your percentages on other flours, you would have a higher per cent of patent, wouldn't you?

A. You mean by figuring—cutting the Red Dog out?

Q. Yes, cutting the Red Dog out, and not calling it as flour, but just call your patent and clears as flours, then figure your percentage on them. Your patent would be more than 80 per cent, wouldn't it?

A. I wouldn't think so. Not that way.

Q. Well, you figure your patent as 80 per cent, and that means 80 per cent of your entire output? A. Yes, sir.

Q. And, included in that, is your Red Dog, isn't it?

A. Yes, sir.

Q. Now, if you cut out your Red Dog, and figure your percentage of the other output, it would be higher, wouldn't it?

[Q.] Well, one or two per cent, maybe.

Q. Well, do millers in South Dakota generally figure Red Dog as flour? A. I don't know as to that.

Q. You do, though? A. Yes, sir.

Q. How do you brand that, when you put it out? Do you brand it Red Dog? A. It is not branded, at all.

Q. Why not? A. It is simply sold by sample.

Q. Do you brand your other flours? A. Yes, sir.

Q. What have you on your bags in which you put your patent flours for instance?

A. My recollection is there is nothing on there, in regard to patent, at the present time.

Q. Since when?

A. I don't know as there ever was. I couldn't say, positively.

Q. What is the brand that is on there? What is on the sack? A. "Snow White" is our home brand.

The Court: "Snow White?"

658 The Witness: Yes, sir.

By Mr. Smith:

Q. And that "Snow White" takes in 80 per cent of the flour?

A. 75 to 80.

Q. Now, can you tell this jury whether or not any of the bags you send out have the word "patent" on them?

A. No, I couldn't. I don't know as they ever had. They may have it now.

Q. How long since you came from the mill?

A. Oh, I have been down here about 7 or 8 days.

Q. Have you been working there right along?

A. Yes, sir.

Q. And you can't tell whether the word "Patent" appears on any of the bags, or not? A. No, I can't.

Q. You see it there all the time, don't you?

A. Yes, but if I see "Snow White" on there, I know what that means.

Q. How do you label your second grade?

A. Our second grade is known as "Ermine."

The Court: What?

A. "Ermine."

The Court: E-r-m-i-n-e?

A. Yes sir. Understand that is not our clear.

By Mr. Smith:

Q. What is that? A. The clear is "Hiawatha."

Q. What is "Ermine"?

A. The "Ermine" is the clear and the patent mixed together.

Q. What is your first clear called? A. "Hiawatha."

Q. Do you label it as a clear flour? A. I couldn't say.

Q. Are you quite sure the word "Patent" doesn't appear on that bag? A. The word "patent" I am positive doesn't.

Q. What do you call your second clear? A. "Eureka."

Q. And what do you call your Red Dog?

Mr. Butler: You don't brand it, at all?

A. Don't brand it, at all.

By Mr. Smith:

Q. What do you call it?

A. Marked with the letter "M" to distinguish it from the feed.

659 Q. When that goes onto the market, contained in flour sacks, there is no brand on there, at all—just "M"?

A. Yes.

Q. But you do sell it as flour,—by sample? A. Yes.

Q. Now, when you ran that bleacher, there, you ran the Williams, did you? A. Yes, sir.

Q. And how many years did you run it?

A. I think between four and five. I am not positive.

Q. Now, when you were running it, you bleached your patent? A. Yes, sir.

Q. Straight? A. Yes, sir.

Q. Clear? A. Yes, sir.

Q. First clear and second clear? A. Yes, sir.

Q. And your Red Dog? A. No, sir.

Q. You bleached everything except the Red Dog?

A. Yes, sir.

Q. Now, I think you said that, on the low grade flours, bleaching—what was your evidence in regard to that—what was the effect of bleaching, on low grade flours?

A. Well, like our second clear, it hadn't the desired effect. The fiber was there, and it didn't make as good impression as it did on the other grade.

Q. As a matter of fact, it magnified the fiber, and made it look worse, didn't it?

A. No, I don't think it made it look worse. It looked bad, before.

Q. It didn't help it? A. No, sir.

Q. Now, in this low grade flour. Now, you spoke of that flour as flour on which the bleaching agent didn't have any effect. A. I did, but it whitened it, some.

Q. Oh,—it bleached the fiber?

A. No. I don't think it did.

Q. It bleached the flour particles, in it, didn't it?

A. In general appearance, it made it a little whiter.

Q. But the impurities, or the fiber that was in there, were particularly discernible, after you bleached it?

A. I don't think any more so than before.

Q. Well, they were readily discernible, before?

A. Yes, sir.

660 Q. And you found that bleaching the low grade didn't help it any, didn't you? A. It helped it a little.

Q. But you discontinued it, because you found it wasn't coming up to what you wanted it?

A. Oh, I never discontinued it, on that.

The Court: On what?

A. On the second clear. I never bleached the Red Dog, but I did the second clear. I never discontinued that.

The Court: You mean you are still using it?

A. Oh, no—until I quit the business.

Mr. Butler: Until he quit the whole business, in 1909, sometime.

By Mr. Smith:

Q. Now, when you used the bleacher there, in your mill, when you manufactured a patent, and a clear, and a straight, we will say, now there was a marked, discernible difference in the color of those three, wasn't there, before they were bleached?

A. Yes. Yes, there was a difference.

Q. Now, what was the color of the patent, then, when it was unbleached? A. Sort of creamy white.

Q. Now, when you bleached the first clear, or the straight, what was its color? Did it then become a creamy white?

A. Yes.

Q. Did you get the cream color on that?

A. It didn't destroy the cream, altogether,—unbleached.

Q. What effect did it have, then?

A. It made it a better looker. Looked a little better.

Q. Bleaching made it look a little better, did it?

A. Yes, sir.

Q. Now, what effect did it have, when you bleached the patent? Make it look a little better? A. Improved it.

Q. Can you readily distinguish the color in the patent, before and after it was bleached? A. Well, yes.

Q. That difference was marked, was it? A. Not much.

661 Q. The patent was pretty white, before it was bleached, wasn't it? A. Pretty white, yes.

Q. And you didn't need much whitening?

A. I used a very small amount.

Q. Now, the first clear after that was bleached—was there much difference in its color, and before it was bleached?

A. Quite perceptible. It was considerable whiter.

Q. Anybody could discover that difference, could they?

A. Oh, yes. Yes.

Q. So that any person, by looking at that could tell whether or not it was bleached, couldn't they?

A. They could tell that one was whiter than the other. They couldn't tell whether it was bleached or not.

Q. But they could see the difference in color? They might not know what caused it, but they could see the difference, and see that they didn't have the same grades of flour?

A. Yes.

Q. And when the patent was unbleached, and when the clear was bleached, could you see a difference, there, in color?

A. Yes, sir.

Q. Plainly? A. Yes, in favor of the clear.

Q. The clear was whiter? A. Yes.

Q. But, if you put the two flours together, you could see there was a marked difference between them, couldn't you?

A. Unbleached patent and the unbleached clears.

Q. They didn't look alike? A. No, sir.

Q. So that a person looking at the two would readily see you had two kinds of flour, there, wouldn't they?

A. Yes, sir.

Q. So, if you passed them both up to a customer, the one patent, unbleached, and the clear, bleached, he would see they were not the same kind of flour, wouldn't he? A. Yes, sir.

Q. He might not know what was the difference—what caused the difference—that is, whether it was in the material, or bleaching, or what,—but he would readily see that he had two different grades or two different looking flours, wouldn't he? A. Yes, he would choose the clear.

662 Mr. Butler: What is the answer?

A. He would choose the clear.

By Mr. Smith:

Q. He would choose the clear, if he wanted a white flour?

A. Yes.

Q. And if he didn't, he would choose the other?

A. Yes, sir.

Q. But what I am trying to get at,—a person looking at the two, could see there was a marked distinction between them?

A. Yes, sir.

Q. And then if he preferred the white one, he would take one, and if he preferred a yellow, he would take the other, would he? A. Yes.

Q. And that was true and the second clear, when you bleached it? A. Not so strong.

Q. The second clear didn't respond as well as the other?

A. Didn't respond.

Q. The fact of the business is, the higher the grade of the flour, the better that does the bleaching? Isn't that it.

A. Yes, sir.

Q. And the lower the grade of the flour, the less good it does to bleach it? A. Yes, sir.

Q. So, when you get down to the Red Dog, it wasn't much good bleaching it, at all? Did you ever try to bleach that?

A. No. It wasn't worth trying.

Q. Now, in your baking tests, where you found this streak like a lead pencil. There, you got some flour that had been standing there in some crevice or part of the mill for a long time, and had been overbleached, as you term it.

A. It was overbleached, yes.

Q. Do you know how long it had been there?

A. I aimed to clean out those spouts and all connected with the bleachers, once a week.

A. Now, if you got flour from any place where it has
663 stood until it becomes sort of mildewed, or damaged, in that way, it would show up in the bread that way, wouldn't it? Show up bad?

A. It wouldn't show up like that.

Q. It wouldn't show up bad but it would show up in the bread, wouldn't it?

A. I suppose it would—mildew. I never tried that.

Q. Now, in making these bread tests, what do you mean by the texture?

A. Why the woven—the loaf, that is close together. It isn't so full of holes.

Q. Yes, I see what you mean. It is kind of porous?

A. Yes, sir.

Q. Now, as to that porous texture. I believe you said you couldn't discover any difference between them?

A. No, sir.

Q. Couldn't notice any difference? A. No, sir.

Q. Could you notice any difference in the size of the loaf?

A. Yes. The volume of the unbleached a trifle over. We got a larger volume from unbleached flour, than we did from the bleached.

Q. Did you ever weigh them? A. Yes.

Q. Which weighed the most?

A. The weight seemed to be a trifle in favor of the unbleached flour.

Q. Was that because it took up more moisture?

A. I think because it retained more.

Q. But, as to the texture, you wouldn't be able to discover any difference? A. No, sir.

Q. As to volume of loaf, you thought it was a little in favor of the bleached? A. No, the unbleached.

Q. Unbleached? In the volume of the loaf. I am not talking about weight. I am talking about volume. Did you measure the two? A. Yes, sir.

Q. Now, which did you find the smaller?

A. The unbleached was the larger loaf.

Q. I thought, in your former testimony, you said the other way?

Mr. Butler: I didn't so understand it.

The Witness: If I did, I meant the other way. It was a mistake.

664

By Mr. Smith:

Q. Because of the amount of moisture that the different loaves would retain, you think that the unbleached retained a little more moisture? A. Yes, sir.

Q. Now, in making these, did you accurately measure the amount of the flour put in the bread?

A. I measured that in c. e.

Q. Well, I suppose that is good. I don't know what that is. How many times did you make this test, on baking the comparative flours?

A. I made those from two to three times a week.

Q. You baked from both the bleached and unbleached, two or three times a week? A. Oh, no.

Q. That is what I am talking about.

A. Oh, no. Oh, I made that—I suppose I made that test possibly 25 or 30 times, during all that time.

Q. Now, have you got any figures with you, so you can give me the comparative weight of the loaves in each instance.

A. No, sir.

Q. Nor the volume measuring them?

A. No, sir, I haven't.

Q. Did you weigh them accurately, on scales, or is this your own judgment?

A. No, I weighed them.

Q. Can you give me the weight of any of them?

A. No, sir.

Q. Did you measure them accurately, as to volume, or is that your judgment with your eye?

A. No, that is actual measurement. We put them in a box, so many cubic inches in the box. We put the bread in there, and then we filled that. We used flax, and that is scientifically figured out by the men that makes the machine.

Q. What machine?

A. The Koellner system. And you tell by that.

Mr. Butler: But the amount of flax that the box will hold, in addition to the bread?

A. Yes, and that gives me the volume in cubic inches.

By Mr. Smith:

Q. Is that done at the mill? A. Yes.

665 Q. Did you ever have any of the bleached and unbleached, baked in your kitchen, by your wife, in the usual method in which women bake bread, and bake the other, too, to see the comparison between the flour?

A. Not that I remember.

Q. Now, these baking tests that were performed in the mill, you did that, personally? A. Yes.

Q. But you are not able to give us any of those figures at all now?

A. No, sir. I haven't any of those figures.

Q. How long ago was that done?

A. I should say a year and a half ago.

Q. You haven't any of these figures with you, here at Kansas City? A. No, I haven't.

Mr. Smith: That is all.

Redirect Examination

By Mr. Butler:

Q. These comparisons which you made, as to baking qualities of the bleached and unbleached flour, [we] made at various times, while you were bleaching at the mill?

A. Yes, sir.

Q. Now, I intended to ask, in substance, this question, in my direct examination. What would be the effect of bleaching a patent—good patent, reasonably short, mixed with a good first clear, as to whether or not it would make the two, taken together, resemble a patent?

A. They would.

Q. Have you tried that very thing? A. Yes, sir.

Q. And how about taking a straight patent, and a first and second clear, if they would be free from dirt and fibres, and put them together and bleach them all together?

A. I couldn't do that. Our second clear was too thin.

Q. Your second clear was too thin to be bleached, and worked off for a patent?

A. No. We wouldn't do that.

Q. Now, Mr. Smith asked you a number of times whether a person could tell the difference in color between a clear flour, bleached, and the clear flour, unbleached, and you answered affirmatively. Could that be told, otherwise
666 than bringing them both together, in the customary way, for comparison of flour color?

A. No. You would have to slick them up together.

Q. And you used some illustration, as in the case of a patent, unbleached, and a clear, bleached, and I understood you to say that the color could be told, but the clear would probably be lighter and the customer looking for white flour would probably take the bleached clear, as the better flour?

A. Yes, sir.

(Witness excused.)

Thereupon Court stood adjourned to meet again at 9 o'clock A. M. Thursday, June 9, 1910.

Morning Session.

Kansas City, Missouri, Thursday, June 9, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Merton F. Dennison, called as a witness on the part of libelant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Dennison, where do you reside?

A. Red Wing, Minnesota.

Q. What is your first name?

A. Merton F. Dennison.

Q. Merton F.? A. Yes, sir.

Q. What is your occupation?

A. Why, I am superintendent of the Lagrange Mill of Red Wing.

Q. The Lagrange Mill of Red Wing.

A. The Lagrange mill.

Q. You are a practical miller? A. Yes, sir.

667 Q. How long have you been following that occupation?

A. Thirty years, a little over thirty years.

- Q. And how long at your present place? A. Nine years.
- Q. And in the capacity of superintendent all of the time?
- A. Yes, sir.
- Q. What is the capacity of your mill?
- A. Twelve hundred barrel.
- Q. Per day? A. Per day, yes, sir, twenty-four hours.
- Q. Does your mill bleach its flour?
- A. Well, we did, yes, sir.
- Q. You did? A. For a year.
- Q. At one time? A. Yes.
- Q. When did you do that?
- A. Why, we began bleaching a year ago the first of March and ceased last March.
- Q. This March that has just passed, two or three months ago, you stopped two or three months ago?
- A. No, that was two years ago—pardon me—we have not bleached for a year.
- Q. You stopped about fifteen months ago?
- A. Yes, sir, yes, sir, a year ago last March.
- Q. Bleached for a year next preceding that?
- A. Yes, sir.
- Q. What kind of a bleacher did you have? A. Alsop.
- Q. Did you become familiar with its operation?
- A. Yes, sir.
- Q. And its effect upon the flour? A. Yes, sir.
- Q. Did you bleach heavily or lightly?
- A. Why, we thought we bleached lightly, that is, that was our intention, at least.
- Q. And how could you control that on your machine?
- A. Why, you control that with a rheostat, that is, you regulate the ampere that you are using, and also with the amount of air that goes through the work.
- Q. So it can be controlled in two ways?
- A. That is somewhat, yes, sir.
- Q. The volume current of electricity and the volume current of air?
- A. Yes, sir, you increase the volume of air and you decrease the bleaching, that is, it is not as strong, and of course if you decrease the amount of electricity used then you also decrease the strength of it.
- 668 Q. Now, as to the effect upon flour of increasing or decreasing the concentration of the gas with air?
- A. Well, it would increase or heighten the color, that is whiten the color by increasing the gas, or that is, the strength of the gas by increasing the volume of air, why, it seemed to

lessen the color, that is, it did not whiten it as much and that was the instructions given by the Alsop people.

Q. Did this process have an odor?

A. Yes, oh, yes, sir.

Q. And where could it be smelled?

A. Why, you could smell it in almost any part of the mill when we were bleaching.

Q. Any part of the mill? A. Almost, yes, sir.

Q. In the flour after it came from the mill?

A. Yes, on the packing floor, yes, very readily.

Q. Did you have any opportunity to observe whether this gas attacks metal?

A. Why, yes, sir, it does; yes, it eats it, rusts it.

Q. And where did you observe that?

A. Why, I observed it—it was more prominent in the agitator.

Q. What kind of an agitator did you have?

A. We have the Mitchell agitator and the construction of that is, there is wooden slides on the revolving beaters, or wooden slides and two of those slides are attached to iron flights, and those iron flights were very badly rusted, and we had the pipes filled up also, that is.

Q. The pipes, leaving the gas—

A. From the tank to the agitator, they filled up.

Q. You make patent flour? A. Yes, sir.

Q. At that mill what is a patent flour?

A. Why, a patent flour is—well it should be properly speaking of middlings flour, of course, we gained a little on it, as we have learned how to handle our mill better and we are running in streams that don't come from the purifier, that is they are not purified middlings, it is pure flour; for instance, we use our second break flour in our patent, which is a very fine flour.

Q. You had something in your particular patent to purify middlings?

669 A. Yes, as I say, this second break flour we added to our patent.

Q. Sent it out under a patent label? A. Yes, sir, yes, sir.

Q. And that other, do you call it a patent flour also?

A. Yes, sir, that is our first patent flour.

Q. What other flour do you make besides the patent?

A. Well, we make a straight, a first clear, and what we call a standard clear and a second clear, as well as a red dog; we are not making that, that is not a flour, that is not used for—

Q. Now, the kinds, the highest number of kinds of flour out of a kernel of wheat, we'll say, patent, first clear, second clear?

A. Yes, a patent, a straight, a first clear a standard clear and second clear.

Q. When you make a straight you don't make a patent?

A. No, sir—well, we make a patent, but our straight and patent and clear is run together.

Q. Now, what per cent patent do you make?

A. About eighty per cent.

Q. About eighty per cent? A. Yes, sir.

Q. And when you run your clear and patent together you call it a straight? A. Yes, sir.

Q. What per cent is that?

A. That would be a 94 per cent.

Q. And what would the rest be?

A. That is the per cent of the rest—

Q. The 6 per cent?

A. That would be a second clear, and our red dog; we figure—our percentages are figured against everything, that is, red dog and all.

Q. Now, when you were bleaching what kind of flour did you bleach? A. We bleached the patent.

Q. Did you bleach the clear?

A. Why, I started out to bleach the clear, but it did not seem to warrant the bleaching; that is, it did not pay.

Q. Did you mix that together, bleaching the straights?

A. No, well, we bleached the patent, and then ran
670 the two straights together and that made our straight;
we did not bleach the clear whether we were running
straight or not.

Q. Yes, sir. I see, you bleached your patent and ran it into the clear and called it a straight?

A. That was a straight, yes, sir.

Q. Now, what effect upon the color mixture would that have? A. Well, it would whiten it.

Q. It would whiten it somewhat? A. Yes, sir.

Q. Does wheat improve by aging and conditioning after it is milled? A. Yes, sir.

Q. And in what respect?

A. Why, it gets whiter and works better that is, flour sometimes when it is milled is inclined to work a little sticky, that is when they make a dough of it it works sticky, and also is darker, of course, in the age alterations, of course, that stickiness is undoubtedly due to the gluten.

Q. In case of bleaching flour by this Alsop process when it is fresh, what effect does that have as respects its appearance compared with what it will appear to be naturally a little later on after stored and conditioned?

A. Well, it would be whiter, I don't think that aged flour would attain the whiteness that you could give to bleached flour.

Q. You think that bleaching makes it even whiter than natural aging does? A. Yes, yes.

Q. And the degree of bleaching that you did yourself would make it whiter than the same flour would become on natural aging?

A. Well, I don't know about that, no, I don't, I would not want to say that because we did not bleach very heavy; in fact we did not like it; we did it because we had to, that was all.

Q. Have you made any comparisons of the dough made from flour bleached and the same kind of flour unbleached?

A. Why, that is, we always dough up our flour particularly—

Mr. Lyons: We can't hear you, Mr. Dennison; just speak a little louder, we don't hear you.

A. I say we dough up our flour particularly at the beginning of a crop: I do not make that a practice right straight through the year, because after we got ourselves located once on
671 a crop of wheat why we have our testing done in Minneapolis by the Howard people, but I dough up myself when we are starting in on a crop for a month or more.

Q. Now, what was your observation as to the quality of the dough made from bleached flour and unbleached flour?

A. Why, of course, the bleached flour doughed up a great deal whiter than the unbleached flour; I sometimes thought that the bleached flour did not dough up quite as dry and work quite as strong as the unbleached, but of course that is pretty hard to tell, it was so close that I don't know that it's worth while to mention, anyway, but the color was marked.

Q. Dough up very much whiter, you say?

A. Oh, yes, yes.

Q. And you think there was some difference in the quality of the dough?

A. Yes, oh, yes, sir, there was a decided difference, and in washing the doughs out after doughing up, why, of course the gluten would show very marked, that is, the gluten of the bleached flour was—well, it was whiter, more of a gray white; the gluten of the unbleached flour was creamy yellow.

Q. Yes. Now, as to the toughness or strength of the gluten as evidenced by the elasticity of the dough?

A. That is where it would show, but otherwise it would be more in the gluten, you could detect it more readily in the gluten, than you could in the dough, that is the original dough after you wash the starch out, why, then of course, then in stretching that gluten you formed some idea that is, you think you did, anyway.

Q. Well, how was it?

A. Well, it was in favor of the unbleached flour; that is, I thought the gluten was a little stronger; it did stretch out further, make a thinner sheet, you know, you can take that gluten and stretch it out just as thin as tissue paper after you get it washed out, get the starch all out of it, and it would seem as though the unbleached would work a little better, stretch out a little thinner.

Q. That is in the degree of bleaching that you—

A. Yes, yes, sir.

672 Q. Now, is this Alsop process in your mill yet?

A. Yes, sir, yes, sir.

Q. Is it used for any purpose there now?

A. Why we are using it to sort of disinfect, that is, we are troubled with the Mediterranean moth, and we are driving them out with that, that is, it seems to be a great benefit in that respect.

Q. What is the Mediterranean moth?

A. Why, they are a pest that we have had—well, it has been about ten or twelve years now, I guess, they have got started up north. They work in the spouts and the like of that, fill them up with a web, and they're a great deal of a nuisance.

Q. How large are they?

A. Oh, they are about the size of an ordinary moth miller.

Q. Half to three-quarters of an inch long.

A. Yes, sir, probably not quite as long as the ordinary moth miller.

Q. Now, in what degree of strength do you use this modified air by the electric arc to kill the moth with?

A. Why, just the same.

Q. Just the same as you did upon the flour? A. Yes, sir.

Q. And does it kill them?

A. Why, you hold—we use a hose and carry that to different parts of the mill, and you get one on the floor and hold it right down on him, that is, pin him right there, blow it onto him and it will knock him, but they won't stay, of course, so that we drive them away, they leave us.

Q. That is by blowing this modified air? A. Yes, sir.

Q. In the spouts? A. Yes.

Q. And bins, the moth disappears?

A. Yes, sir, they do not like it, they won't stay there.

Q. And you can really assassinate one with it if you hold it on him? A. Yes, yes.

Q. Is it possible to make a 90 per cent flour—well, I withdraw that question. You heard the testimony of Mr. Tuucker here?

A. No, I did not—yes, sir, Mr. Tucker, yes, sir.

Q. He milled the flour that was seized? A. Yes, sir.

Q. You heard him describe his yield? A. Yes.

Q. Four bushels and a half of 59 pound wheat to the barrel of flour? A. Yes, sir.

673 Q. Are there any milling methods known that will take out 90 per cent of that kind of flour which may properly be called purified middlings?

A. Why, not to me, no, sir. That is not a first-class patent flour, I should call his flour an ordinary straight, that is, from my point of view at least.

Cross-Examination.

By Mr. Smith:

Q. What would these men that make the 50 per cent patent call theirs? A. I don't know, sir.

Q. But you do make an 80 per cent patent?

A. Yes, sir.

Q. Other millers only make a 50 per cent patent, don't they?

A. I don't know of any that is making a 50 per cent.

Q. You heard some testify here, have you not?

A. I have heard them testify.

Q. You heard Mr. Ballard say that he only made a 50 or 55, didn't you?

A. Yes, that is winter wheat, soft winter wheat.

Q. So there is a greater difference between his patent and yours than there is between his and the flour in question?

A. It is an entirely different class of wheat.

Q. What kind of wheat do you use?

A. We use spring wheat, hard wheat.

Q. Raised where?

A. His is a soft wheat, winter wheat.

Q. That you mill?

A. North and South Dakota and Minnesota.

Q. This is spring wheat? A. Yes, sir.

Q. Hard or soft spring wheat? A. It is a hard wheat.

Q. Have you had any experience in milling the winter wheats that is raised in this latitude, section of the country?

A. Some, yes, sir, some.

Q. You grind some of it at your mill?

A. Not at the present mill I have ground it, though, ground 50 per cent of it, I have ground as high as 50 per cent of it.

Q. What do you mean—mix it? A. Yes, sir.

674 Q. With what?

A. With spring wheat, with our spring wheat.

Q. At your mill up there?

A. Not at the mill I'm at now, no.

Q. What do you call it after you mix it?

A. Spring wheat flour, sold it for that.

Q. That is, you mix 50 per cent of Nebraska or Kansas or Missouri winter wheat?

A. 50 per cent of Kansas Turkey wheat.

Q. Kansas Turkey wheat with your spring wheat ground up into flour and sold it as spring wheat flour, have you?

A. Yes, sir.

Q. Branded it as such?

A. Yes, sir; that is, it was not—we did not change our brand, that is.

Q. No, you put it in bags and sold it on the market?

A. Yes, sir.

Q. As spring wheat flour? A. Yes, sir.

Q. When as a matter of fact, half of it was made out of winter wheat? A. Yes, sir.

Q. Now, why do you mix it?

A. Why, it was cheaper, Kansas was cheaper than spring, that was all.

Q. It was cheaper to buy Kansas Spring wheat or Kansas winter wheat and mix it with your spring wheat, and then put it all out as being made out of spring wheat flour?

A. Yes, sir.

Q. As spring wheat? A. Yes, sir.

Q. Well, of course you tell your trade it was mixed?

A. I didn't have anything to do with the trade; I run the mill; that is out of my line.

Q. Of course your company told the trade that it was mixed, didn't it? A. I suppose they did, yes, sir.

Q. Now what do you know about it?

A. I don't know anything about it.

Q. But you know it was branded on the bags as being made out of spring wheat?

A. It was our regular brand, yes, sir; our spring wheat brand, yes, sir.

Q. Yes, are you doing that now? A. No, sir.

Q. When did you discontinue that?

A. This concern has never done that, the concern I am with at present has never done that.

675 Q. What concern was it that did that?

A. Why, I don't know that I have to answer that question: they are not interested.

Mr. Butler: That is more than nine years ago.

Q. When did you quit it?

A. Oh, it was twelve or fourteen years ago.

Q. But you were the miller when it was done?

A. Yes, sir, I was the miller, yes, sir.

Q. Now, this spring wheat that you grind in your mill up there makes a much whiter flour than the flour that is grown

from Kansas and Nebraska and Missouri, wheat flour, does it not?

A. Why, not whiter than some of it, no, sir; I think there is some Kansas mills that are making just a white flour as we are.

Q. Well, you know it is true, do you not, that your spring wheat makes a whiter flour than the winter wheat that is ground in Kansas and Nebraska and Iowa, that is raised here?

A. Why I know that when we grind our 50 per cent of Kansas we did not seem to have any trouble with their color any more than we did without it.

Q. Have you ever seen any wheat that is ground here in the Kansas City mills that is made from wheat grown in Kansas and Nebraska or this vicinity?

A. No, I have not, no, sir, never have.

Q. You are not prepared to say, then, how they compare in color? A. No sir.

Q. Now, what is the capacity of the mill you are in now?

A. 1200 barrels.

By the Court:

Q. Twenty-four hours, you said?

A. Yes, sir, twenty-four hours.

By Mr. Smith:

Q. And how many sets of rolls? A. Thirty-seven stands.

Q. How many corrugated rolls?

A. We have twelve stands, that is double stands.

Q. And it has how many sets of smooth rolls?

A. The balance are smooth rolls.

Q. The balance of them? A. Yes, sir.

Q. Now, how soon after you commence your grinding, 676 do you draw off patent flour?

A. From the second break.

Q. The first break you do not draw off any patent flour from that, but from the second break you begin to draw off patent flour? A. Yes, sir.

Q. And how long do you continue it?

A. That is the end of that, of the patent flour, that is, you mean of the break—

Q. No, after it begins to go through the smooth rolls it would all be patent flour all the time?

A. Why, no, not all the smooth rolls no, sir.

Q. Up until how many?

A. Why, until our sixth reduction is patent, that is the smooth rolls alone, you say?

Q. Yes, do you make any of what is called the red dog?

A. Yes, sir.

Q. Well, do you regard that as a flour? A. No, sir.

Q. You don't sell that on the market as flour; it goes out as feed?

A. That is a good deal for foundry flour and for feed.

Q. What is the name of the mill?

A. Lagrange, the Lagrange Milling Company.

Q. Red Wing? A. Yes, sir.

Q. What part of Minnesota is that in?

A. Well, Goodhue County, that is the eastern part; we are right on the Mississippi river, about forty miles from Minneapolis or fifty mile.

Q. Now, when you were buying this Kansas winter wheat and grinding it and selling it as Minnesota spring wheat, why do you mix it; why didn't you use all Kansas wheat?

Mr. Butler: I believe I will note an objection. It was about fourteen years ago when he had that experience; it is not called out by anything referred to on direct examination.

The Court: Let him answer. Proceed, you may answer.

A. I don't understand the question.

(Question read by the reporter)

A. Why, no, I was milling generally our local receipts furnished us with about half of what we ground.

Q. Is that the reason you did not use all Kansas?

A. Why, possibly—

677 Q. Well, I am not after a possible reason; I am after the actual reason.

A. I don't know that; I didn't have anything to do with the buying, the financial part of the mill.

Q. All you did is the grinding? A. Yes.

Q. Now, when you bleached the wheat there in Minnesota was there a noticeable difference in the color before and after bleaching? A. Oh, yes, sir, a marked difference.

Q. When you bleached the clear flour, or did you ever bleach the clear?

A. Yes, sir, I started out to bleach the clear but I discontinued.

Q. But you found out that was not a success?

A. Why, it was all right, but the trade did not seem to care, that is, I don't think the trade cares much in the clear trade.

Q. As a matter of fact, from the commercial standpoint, the practical standpoint there was no benefit or advantage in bleaching the low grade flour, is there?

A. I didn't find it so, no sir.

Q. You never heard of a miller that did find it advantageous to bleach the low grade flour, did you?

A. Why, not the low grade, most of the millers up in that country bleach the clear, the first clear.

Q. The first clear?

A. Yes, the great majority of them do.

Q. In the mill what you regard as low grade flour you never found it advantageous to bleach that?

A. No, no, I did not.

Q. Now, when you would bleach a straight clear and compare that with samples of your patent flour which was unbleached? A. Yes.

Q. Now, was the color there noticeable? A. Yes.

Q. A distinction? A. Yes.

Q. The unbleached had the cream color?

A. Yes, sir, it was marked.

Q. And the bleached had a whiter color? A. Yes, sir.

Q. Readily noticeable? A. Yes, sir.

Q. So the distinction between a bleached flour, I don't care what grade it is, and high grade unbleached flour is readily distinguishable, isn't it? A. Yes, sir.

678 Q. One presents a sort of yellowish or creamy appearance, and the other one is a whiter? A. Yes, sir.

Q. Anybody can distinguish that color?

A. Anyone, yes, notice it.

Q. They did not look so much alike but what anybody who would make a comparison could see the difference?

A. Oh, yes.

Q. Now, in making your dough tests did you have apparatus there by which you could scientifically measure the strength of the gluten? A. No, sir.

Q. Or measure its weight? A. No, sir.

Q. Or its volume? A. No, sir.

Q. All you did was simply to take it in your hands and such tests as you could make or take of it? A. Yes, sir.

Q. Of course you don't pretend to say that that would be an accurate determination?

A. No, sir, would not, any more than as far as the color is concerned, and I would form my own notion in regard to it.

Q. The color, of course, was noticeable to the eye?

A. Yes.

Q. About the only way you could determine the color is by the eye? A. Yes.

Q. But as to the question of the volume of it or its strength or its elasticity you had no apparatus for making any accurate determinations?

A. Nothing any more than to satisfy myself, that was all.

Q. You said you tested this up with each year's crop?

A. Yes, sir, yes, sir.

Q. Now, is it true that each year's crop will vary from the other in that respect?

A. Yes, sir, yes, sir.

Q. Now, is it true that each year's crop will vary from the other in that respect?

A. Oh, yes, sir, yes, sir.

Q. Different wheats vary, do they? A. Yes, sir.

Q. Wheat that is brought in by one farmer will differ from the wheat brought in by another one? A. Yes, sir.

Q. Depending somewhat on the soil on which it is raised.

A. Yes, sir.

679 Q. And the particular time when it is harvested, does it? A. Yes, the class of wheat, the kind.

Q. The time it has lain outdoors in the shock or in the stack? A. Yes.

Q. All those things will tend to make different kinds of wheat, or different farmers' wheat differ from each other?

A. Yes, sir, to a certain extent.

Q. To a certain extent, so that the peculiar doughing qualities of one farmer's wheat would not be exactly the same as the doughing quality of another farmer's wheat?

A. No, no.

Q. Why that is true, isn't it; and it is true, isn't it that in those tests that you made there the color was the only difference that was really noticeable and plainly distinguishable?

A. Yes, sir.

Q. That you could always see? A. Yes.

Q. The other qualities was not such a difference that you would be prepared to say that there always was a difference between.

A. Why, yes, I said so, that is in my own mind I thought there was.

Q. You thought there was? A. Yes.

Q. But it was simply made by testing there in the mill?

A. Yes.

Q. Incidentally as you went on with your work?

A. Yes.

Q. But the color between any kind of flour that was bleached and your best patents that was unbleached, or your straights that were unbleached, was always clearly apparent?

A. Yes, sir.

Q. Anybody could see? A. Yes, sir.

Q. All you had to do was to look at it? A. Yes, sir.

Redirect Examination

By Mr. Butler:

Q. You would have to look at it in comparison with the other right beside it, however, in order to see any difference, would you not?

A. Why, yes, sir, yes.

Q. And when you say you recognized the difference in color, you mean in bringing the two flours slicked up together?

A. Yes.

Q. And dipped in water to bring out the color?

A. Yes.

680 Q. That is always understood, isn't it, among millers?

A. Oh, yes, that is it was as far as I am concerned.

Q. Do you know whether it is the habit of housewives in purchasing flour from their grocers to dip it and slick it down to compare colors?

A. I don't think they do; I never heard of anything of the kind.

Q. Now, in the comparisons which you made in washing out the gluten and testing the dough or working the dough, Mr. Smith called, in that connection, called your attention to the difference, that is, of wheat? A. Yes, sir.

Q. Which sometimes came from farms near together?

A. Yes.

Q. Now, in the comparisons did you use the flour from the same kind of wheat that came to the mill about the same time, so as to get a line on it?

A. Why, our flour does not vary, that is, according to the classes of wheat, we mix, we have 50 thousand bushels of wheat mixed up all of the time, well, not fifty, but thirty-five, twenty-five to thirty-five thousand bushels of wheat mixed up all the time, that is going into the mill, and of course the mill cannot run any other way.

Q. So the difference that you mention as having observed in the gluten was not dependent upon difference in the wheat?

A. No, sir, no, sir.

Q. The only difference there was one was bleached and the other was not? A. Yes, sir.

Q. Now, you said that most millers in that country bleached their flour, but that you do not?

A. Why, I think most of them bleach it, I talked with a great many and—

Q. Now, that there may be an understanding, if possible, as to that, the first is the patent? A. Yes, sir.

Q. The next is the clear?

A. The next is the straight.

Q. The next is the straight, that is the patent and clear mixed together?

A. That is you mean in grade, in quality?

Q. Yes. A. The patent, straight, clear.

681 Q. Yes, sir.

A. What we call our standard clear and our second clear.

Q. Now, the low grades.

Judge Scarritt: That is a division in his own practice, as I understand it; is that right?

Mr. Butler: It was not exactly the question I had in my mind either, Judge.

Q. Now, leaving out the straight, which we understand to mean the whole flour, when we come now to divide up the flour from any given wheat, it is patent, clear, which may be divided into first or second, and some call the next low grades, and some call the next red dog? A. Yes.

Q. That is, low grades and red dog are interchangeable?

A. Yes.

Q. Some millers call low grades red dog, and other millers call the same thing low grade?

A. Well, some, say that, that is all.

Q. That is what I mean. A. Nothing definite about that.

Q. So that when the patent and clear are both bleached, that amounts to the bleaching of practically all of the flour content of the wheat, does it not? A. Yes, sir.

Q. For convenience in opening the case to the jury I brought in something that I understand to be red dog, and I call to your attention, it is in a bottle marked "red dog", and ask you if that is the substance that is usually understood by millers to be red dog and called by some low grades?

A. Yes, sir, that resembles ours a great deal; a little redder, more dog about it, I guess.

Q. Now, when the patents and clears are bleached, does that mean that all of the flour that is made from the wheat is bleached except such as that stuff in that bottle called red dog, which may vary, of course?

A. That is, you mean the first and second clear?

Q. Yes. A. No, we would have a second clear also.

Q. But I said the patent and the clear?

A. The patents are first-class, yes, sir, certainly.

Q. Now, some mills do not divide the clear into first and second, but put all the clear together?

A. Yes, sir.

Q. You divide it into first and second? A. Yes, sir.

Q. Now, what I am getting at is this, you said up in that country most all of the millers bleached the clear as well as the patent? A. Yes.

Q. What I am getting at is that you bleach all of the flour except such stuff as is in that bottle called red dog?

A. Most of the mills up my way make a second clear, that is the most larger sized plants, and they do not bleach the second clear; I never knew them to anyhow.

Q. So that would leave the red dog such as in that bottle and the clear somewhat above that?

A. Yes, sir, yes sir; the second clear is a pretty fair flour.

Q. That contains the germ?

A. Well, we do not aim to have any germ in it; we aim to make it as clean as possible, of course, there is very little germ in the second flour.

By the Court:

Q. You mean the germ of the wheat? A. Yes, sir.

By Mr. Butler:

Q. That is what I meant in my question.

The Court: You don't mean some objectionable bug or anything of that kind?

Judge Scarritt: Microbe.

Mr. Butler: No, I mean the seed germ.

By the Court:

Q. What do you mean, Mr. Witness?

A. The germ of the wheat, it pulverizes, more or less in grinding, you see.

By Mr. Butler:

Q. The millers aim to eliminate that nearly, do they not?

A. Yes, sir.

Q. When they are making flours they aim to get that out into the feed.

(No answer.)

William Graham, called as a witness on the part of the libellant, being duly sworn, testified as follows:

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Direct Examination

By Mr. Butler:

Q. You live at Groton, in South Dakota? A. Yes, sir.

Q. And your occupation? A. Miller.

Q. How long have you been a miller?

A. About thirty years.

Q. How long at Groton, South Dakota.

A. Twenty-three years, I think.

Q. Are you the man in charge of the operation of that mill? A. I am.

Q. One of its proprietors? A. Yes, sir.

Q. And what is the name of the mill?

A. Groton Milling Company.

Q. Groton Milling Company. Is it a corporation or a partnership? A. It is.

Q. It is a corporation, and you are one of the officers of the corporation? A. Yes, sir.

Q. Does your mill bleach its flour?

A. It used to; it does not now.

Q. When did it begin and when did it stop bleaching?

A. Well, I couldn't tell you when I began. I didn't think to look it up and I don't remember; I think that we bleached about two years.

Q. When did you stop?

A. Well, we stopped when we were notified to stop.

The Court: The question is when you stopped.

By Mr. Butler:

Q. About the date; I just intended to call for the time?

A. I think it was along in January some time.

By the Court:

Q. What year? A. Of 1908, I think.

By the Court:

Q. Two years ago last winter or one year, or what date?

A. Well, I don't just remember when they stopped bleaching.

By the Court:

Q. That ain't the question; fix the date as near as you can—well, go ahead.

By Mr. Butler:

Q. At any rate, you bleached a couple of years and stopped recently? A. Yes, sir.

Q. Either a year or two years and a half ago, something of that kind? A. Yes, sir.

Q. But whether it is one year and a half or two, you do
684 not at this moment recall? A. I don't know.

Q. What kind of a bleaching apparatus did you have?

A. Naylor and Girard.

Q. How is that made?

Judge Scarritt: We object to that as immaterial.

Mr. Butler: I want to show—

Witness: Well, we have an agitator.

Mr. Butler: That is admitted by Mr. Elliott here.

The Court: Yes, go ahead.

A. We have an agitator which is about twenty-four inches, I think, in diameter, about five feet long, one end of the agitator has a little fan; on top of the agitator sets a jug that we put the acid in.

Q. What kind of acid?

A. I don't know, I don't know the formula of it.

Judge Scarritt: We object to proceeding further, if the court please, that is enough to show that it is not the same process.

Mr. Butler: Mr. Elliott yesterday admitted that the Naylor and Girard employed the same bleaching medium as the Alsop process. He said he employed NO₂.

Mr. Elliott: I said it employed peroxide of nitrogen.

Mr. Butler: Do you deny that the Alsop process—

Mr. Smith: Go on with the witness, not examine each other.

Judge Scarritt: I make the objection.

The Court: I will allow this witness to go on the statement just made by Mr. Elliott that the result is nitrogen peroxide.

Judge Scarritt: We renew the objection to the question and to the suggestion of the court, which says that one is made from acid and the other from acid.

The Court: Mr. Elliott in open court has admitted that the resultant gas is the nitrogen peroxide. On that 685 statement he may answer.

To which ruling of the court claimant then and there duly excepted.

Witness: On top of this agitator sets a jug that we place this acid in. Upon the pipe that the fumes pass through the flour there is a little feed that we feed a wire down through this feeder into this acid. This wire striking the acid forms a fume, passes up out of the top of the jug and is blown through this pipe into the flour. We use a soft iron galvanized wire that we feed in the acid.

By the Court:

Q. What is called sulphate of iron; do you know what it is called?

A. No, it is galvanized wire; we buy it as galvanized wire.

By Mr. Butler:

Q. You put that into the acid and fumes arise?

A. Yes, sir.

Q. Then what do you do with the fumes?

A. Blow it into the flour.

Q. And into the acid?

A. Why, head the agitator into the flour and the flour strikes, of course the flour goes through the agitator and the

flour strikes or the fumes strike the flour at the head of the agitator.

Q. And what kind of an agitator do you have there?

A. Horizontal round beaters inside, or not beaters, but a kind of a conveyor.

Q. How long would the flour remain in the agitator?

A. Oh, I don't know.

Q. Keep right on going through? A. Yes, sir.

Q. So the flour comes in at the top of it?

A. And passes out the bottom.

Q. And goes over some fan and goes out and keeps right on going, is that it?

A. Yes, well, there is no fans, it is a kind of a reel, something similar to a differential reel.

Q. How far does it have to go from the time it gets into the agitator until it gets out?

A. Oh, I think about four feet.

Q. Then keeps right on going all the time?

A. It goes into the bend from the agitator.

686 Yes, but I mean when it goes into the agitator at one end it goes through it and goes out at the other?

A. Yes, sir.

Q. And does it keep on going all the time it is in the agitator? A. Yes.

Q. About as fast as it would fall or nearly so?

A. Yes, yes, the stream, it takes the stream that falls.

Q. So that the flour is in the agitator about as long or a little longer than it would take to fall four feet?

A. Oh, yes, yes.

Q. I am trying to get the duration of time when a given quantity of flour would be in the agitator.

A. Well, I couldn't tell.

Q. Yes. Well, it is a very short time, is it, or not?

A. Well, it is a short time; doesn't remain there long.

By the Court:

Q. What process is this called? A. Naylor & Girard.

By Mr. Butler:

Q. Have you had opportunity to observe the effect of this bleaching medium, the fumes, mixed with air, on metals?

A. Some.

Q. What effect does it have?

A. Why, in the pipe that passes the fume from the jug through to the flour, there is a yellow substance gathers in there, and you notice little chips, little scales of iron.

Q. Have you had opportunity to observe the effect upon flour that remains exposed to this medium for a considerable length of time? A. Nothing only to look at it.

Q. What was it, how did it appear to be?

A. Well, it is not as dark as the rust, or whatever you call it, you get out of the pipe, it is lighter than that, but it is a very dark yellow.

Q. As dark as an orange or lemon or sulphur?

A. Oh, something perhaps.

Q. Did you examine any such flour?

A. No, sir, not to bake or dough up, or anything.

Q. Now, what effect does this gas, mixed with atmospheric air have upon flour in the ordinary use of the process?

A. Bleaches it.

687 Q. And as to the degree of bleach, can that be controlled? A. It can.

Q. How?

A. The more wire you feed into your acid the higher your bleach is.

Q. That is, the more the bleaching will be?

A. The faster you feed your wire into the acid the more flour is—or you use more acid, of course the more wire you feed the more acid you are using.

Q. And how about the fumes?

A. Well, the fumes, you get more fumes, I suppose, if you get more acid.

Q. That is the degree of bleaching depended upon the quantity of fumes mixed with the air?

A. It does, you understand me, this is not mixed with air.

Q. It is not mixed with air before it goes in; how does it get in?

A. It is blown in; these fumes rise up at the top of this pipe and the air blows the fumes to the flour.

By Judge Scarritt:

Q. Not mixed with air, you say?

A. Only in the air blowing through the fumes after it reaches the jug.

By Mr. Butler:

Q. Well, not, let us get that. You have a jug.

A. Yes.

Q. Something that the acid won't eat up? A. Yes, sir.

Q. Then you put wire into your jug? A. Yes, sir.

Q. And then fumes come up? A. Yes, sir.

Q. What color? A. Yellow.

Q. And then the next thing that happens is a blast of air blown across the fumes? A. Yes, sir.

Q. And that is by means of the pipe conducted into the place where the flour comes, called the agitator?

A. Yes, sir.

Q. And there is no mixture of the fumes with the air except such mixture as is effected by this blast of air right through the fumes? A. No, sir.

Q. That is all, and you can control the volume of air, can you? A. No, no.

688 Q. There is no arrangement to control the volume of air? A. No, sir.

Q. Did you compare flour that was bleached by this bleaching process with flour that had not been of identically the same kind? A. Yes, sir.

Q. What change is effected by the bleaching as to the appearance of the flour and its quality?

A. The flour after bleaching has a whiter color, I won't call it a white color, it is a dead color, it is a dull white or an ash white, where the unbleached has the yellow tint.

Q. Now, as to the quality of the flour, have you made bread with it? A. I have.

Q. Under like conditions? A. Yes, sir.

Q. By this chemical process? A. Yes, sir.

Q. Now, tell us what effect this product, nitrogen peroxide gas, blown into the flour has upon the flour?

A. Well, I find that I get a little better volume from the unbleached flour.

Q. Volume of what?

A. Volume of loaf, I get a little higher loaf with the unbleached flour, it seems to have a little more water and makes a little more bread to a given amount of flour.

Q. Color, odor, taste, if any change?

A. The color is whiter or a dull white.

Q. Of which?

A. Of the bleached, or a creamy white of the unbleached. The odor, I cannot distinguish any odor between the two breads.

Q. The bread seems to be the same?

A. Seems to be the same.

Q. The taste the same or different?

A. No, they are different, the taste of the unbleached flour tastes of the natural wheat, you take and chew up your wheat and you get the same flavor of your unbleached flour as you do of nice, clean sound wheat. The flavor of the unbleached is not so palatable.

Q. I think you have said "unbleached" in both instances?

A. The unbleached has the flavor of the pure wheat.

Q. Yes, and the bleached now?

A. It is not so palatable, not so good to the taste.

689 Q. As to the elasticity of the dough between the bleached and unbleached, treated exactly alike, except one is bleached and the other is not?

A. In the whole loaf?

Q. Yes.

A. Well, I can't see any difference.

Q. In the working of the dough?

A. In the working of the dough.

Q. Now, in the gluten washed out of the whole dough?

A. Well, the gluten after it is washed out is considerable whiter or this dull, this ashy white.

Q. Now, did you observe any difference in the elasticity of the gluten? A. Yes, sir.

Q. Which was the stronger? A. The unbleached.

Q. Now, as to the degree of difference, was it slight or considerable?

A. No, it was not so awful much in stretching it out and working it out into a thin sheet like tissue paper, in working it out your finger would pass up through your bleached gluten, it would not stretch up over the end of your finger as well as the unbleached.

Q. Now, did you bake regularly from time to time?

A. Yes, sir.

Q. A part of your milling operations?

A. Yes, sir; I never have made very many different tests between the bleached and the unbleached.

Q. Were your tests or observations extensive enough to determine whether or not the difference between the bread made from the bleached flour and the bread made from the unbleached flour depended upon the amount of bleaching, that is take a case of heavy bleaching, the use of a lot of this gas as compared with one where considerably less was used?

A. Well, the highest I ever bleached was one notch of wire feeding to my jug, where I could use four.

Q. Yes.

A. I would use about six feet of No. 4 galvanized wire in twelve hours to a good pint of gas.

Q. Now, did you ever have any opportunity to observe or test the relative keeping quality of the flour? A. Yes.

Q. What was that?

A. Well, I have taken the bleached and the unbleached and placed it in a box which I consider was tight, placing the flour in a sack, wrapping the sack with paper and putting it in a dark place, taking two samples of the same flour, putting them in a sack and placing them in the light and air. After five months and eighteen days I think I baked them and

690 I found that the flour that had laid to the light and air, the unbleached, was far superior to anything that I baked.

Mr. Smith: Your Honor, I move to strike that out as a conclusion of the witness.

Mr. Butler: I am not at all certain that the miller may not say one flour is better than another.

The Court: Well, of course, I know there things are very close along the border line, what is a subject of opinion and what is not, and I will strike that out.

Mr. Butler: Very well, strike it out.

By Mr. Butler:

Q. Well, I would like to have you compare the elements then of the flour and of the bread made from the flour in each pair, the pair kept in the dark and the pair kept in the light.

A. I have them in my pocket.

Q. You have preserved the data? A. Sir?

Q. You have preserved the results? A. Yes, sir.

Q. You may refer to them.

Judge Scarritt: Did he make them at that time—you made them yourself?

A. I did.

By Mr. Butler:

Q. At the time of your observation?

A. Baked them all in one day and took the flour out the same day.

Q. They were truthfully made? A. Yes, sir.

Judge Scarritt: Did you make your memorandum the same day, the same time?

By Mr. Butler:

Q. You made your memorandum the same time you did the baking? A. Yes, sir, yes, sir.

Q. Now, you may give us the comparison; give us the two pair first.

Judge Helm: Is this on the bleached flour?

Q. There is one sack of bleached and one of unbleached; they were wrapped up and put in a box and kept in the dark for five months and 18 days.

A. You want the unbleached first?

691 Q. I want the pair—I don't care which you give me first; give us the unbleached first, the dark.

A. Here is the patent flour.

Q. This is the unbleached now, is it?

A. This is bleached and placed in the light.

Q. All right. Then we will start with the other part and take the bleached. This is from the pair that was kept in the

light for five months, and he will speak first of the bread made from it.

A. The pair that was placed in the light.

Mr. Smith: Let him speak, then we'll see.

Q. Now, which one are you telling us first, the bleached?

A. The bleached.

Q. Go on.

A. The bleached patent, using the same amount of flour and ingredients, the same amount of water, I got 515 grams of bread, grams baked out 34; time to raise 55 minutes, this is a straight dough made according to the Koelner system; temperature of oven 360; cubic inches of bread 88, using $9\frac{5}{8}$ inches of seed.

Q. That is the flax seed that you put in the box around the bread to find out its volume? A. Yes.

Q. Its volume? A. Its volume is 88; color a dull white.

By Judge Helm:

Q. What is that?

A. Color a dull white, flavor not so palatable.

Mr. Smith: I am not going to object; I can see we are getting to the line and I am simply claiming the same privilege later on myself.

The Court: All right.

A. Texture of bread, good. Now, that is the bleached. Now, this is the unbleached, the same amount of flour, the same amount of water, gave me 522 grams of bread; time to raise 55 minutes; temperature of oven 360; cubic inches of bread 93; number of inches of seed used 9; color creamy white; flavor good; texture good.

Q. Now, as to the bread made from the flour which was wrapped up and kept in the dark as you describe.

A. Patent flour bleached and placed in the dark.

Q. By the way, were those four bags all the same kind of flour.

692 A. Yes, sir, yes, sir.

Q. This is the bleached?

A. This is bleached. Total grams of bread, 519; time to raise 50 minutes; temperature of oven 360; cubic inches of bread, 88; number of inches of seed used $9\frac{5}{8}$ ths; color of bread dull white; flavor not so palatable. Unbleached, 522 grams of bread; time to raise 50 minutes; temperature of oven 360; cubic inches of bread 88; number of inches of seed used $9\frac{5}{8}$; creamy white color; flavor good; texture of bread good.

By Mr. Smith:

Q. How is that? A. Texture of bread good.

Q. Was this bread made from wheat that had been through the sweat or that had not, I mean whether it was made from new wheat or old wheat?

A. Made from old wheat; it was made in January and our new wheat comes in about September.

Q. Now, as respects the quality of flour, color, quality and color of flour made from new wheat as compared with the flour made from the same wheat if it has been aged and conditioned, and gone through the sweat, is there any difference? A. Yes.

Q. What is the difference?

A. The flour from the new wheat will be more yellow, and I don't think that—it won't take quite so much water in baking it up.

Q. Is it well adapted for bread making as if the wheat had been old and in condition?

A. No, the new wheat, you mean?

Q. I mean the new wheat flour? A. No.

Q. Now, what is the effect of bleaching upon that kind of flour as to its appearance? A. Well, it is white.

Q. And whether or not it makes the flour appear generally like flour made from the same wheat after it had been through the sweat and aged and conditioned? A. Without bleaching?

Q. Yes. A. No, they did not compare.

Q. They would not compare? A. No.

Q. Well, would the difference be greater, made greater by the bleaching or less?

A. It would be made greater by bleaching.

Q. That is, my question is this, you take new wheat that has been through the sweat?

A. Right from the threshing machine, you mean?

693 Q. Yes, and mill it? A. Yes, sir.

Q. Make flour of it? A. Yes, sir.

Q. That flour is yellowish? A. Yes, sir.

Q. And not quite so good for bread making, you say, as flour would be from the same wheat if it has been through the sweat? A. No, it is not so good.

Q. Now, suppose you bleach that new wheat flour, does it make it look like the flour made from old wheat that has been through the sweat, or does it make it look still different?

A. It makes it look whiter.

Q. It makes it look whiter? A. Yes, sir.

Q. It makes it whiter than the flour which would be made from the wheat if it had been aged and conditioned?

A. Yes, sir.

Q. Now, as respects the color and quality of fresh flour made, we'll say from good wheat that has been aged and conditioned, how does the color and quality of the flour while

fresh, not having been bleached, compare with the quality and color of the same flour after it has been aged and conditioned?

A. Well, after it is bleached, why, it would be—

Q. I am not speaking of bleaching now leave out bleaching altogether. A. What is the question?

Q. I want the color of fresh flour? A. Yes, sir.

Q. Made from good, sound wheat that has been aged and conditioned, the color and quality as compared with that same flour after it has been aged and conditioned?

A. Well, you mean to find out whether—

Q. What is the effect of aging and conditioning a good flour made from good wheat without any bleaching at all; that is what I am trying to get at? A. That is whiter.

Q. Now, as to quality? A. It gets better.

Q. In what respect?

A. The dough is tougher, the gluten is a little tougher, and it requires a little more water.

Q. Now, the effect upon the appearance of fresh flour
694 of that kind of bleaching, does it make it whiter?

A. To bleach that flour?

Q. Yes, sir. A. Yes, it will make it whiter.

Q. And does the degree of whitening depend upon the amount of bleaching that it is subjected to? A. Yes, sir.

Q. What is a patent flour, Mr. Graham?

A. We consider a first patent flour as long as we can make good, clean, sharp, purified middlings.

Q. You heard the testimony of Mr. Tucker? A. No.

Q. Mr. Tucker on the stand—

By the Court:

Q. You say no?

A. No, not all of it; I heard just a little of it.

By Mr. Butler:

Q. In your opinion, can 90 per cent, in their 90 per cent patent, be made of that kind of a patent, high or first quality patent, containing only the purified middlings such as you describe here? A. Not with our spring wheat?

Q. You are not familiar with the Nebraska? A. No, sir.

Q. I think that is all.

Cross-Examination

By Mr. Smith:

Q. You don't know anything about Nebraska wheat?

A. No, sir.

Q. Never grown any? A. Never grown a bushel.

Q. Did you ever have any experience in milling Nebraska or Kansas or Missouri wheat? A. No, sir.

Q. Ever use any flour made from that?

A. Yes, I used flour made from that, but I never tested it, or anything like that, just looked at it.

Q. So you would not be able to express any opinion of the comparative color or strength or feeling or anything else?

A. No, sir.

Q. The process you used there was what you term the Naylor & Girard process? A. Yes, sir.

Q. You had a jug, you say, sitting on top of the agitator or sitting some place?

A. It sits right up on top of the agitator.

Q. It contains a liquid, a fluid? A. The jug, yes, sir.

Q. What is its color?

A. It is a blue when it is put into the jug.

695 Q. Pronounced blue?

A. Oh, no, no, it is not a pronounced blue, it looks blue in color.

Q. Blue as indigo? A. Oh, no, I don't think so.

Q. That is a distinctive color of this blue, is it?

A. It is blue.

Q. Now, in order to generate with that apparatus then you put in this jug some wire? A. Yes, sir.

Q. What kind of wire is it? A. Galvanized wire.

Q. Now, does the action of this fluid that you have in there eat up the wire? A. Yes, sir.

Q. So that as you continue your process you put more and more wire in it?

A. It feeds—the wire feeds itself.

Q. That is, it sinks down in there that way, does it?

A. Yes, sir.

Q. In running your mill say a period of twenty-four hours you would mill how many barrels of flour?

A. Oh, 200, 250.

Q. That is the capacity of your mill?

A. 250 barrels.

Q. 250 barrels a day in milling, that is, 24 hours, how much of this galvanized wire would you consume?

A. I would use the way we are bleaching, twelve feet in 24 hours.

Q. 12 feet of wire? A. Yes, sir.

Q. That would be entirely eaten up or disintegrated by this fluid? A. Of No. 4 wire.

Q. By that you mean size No. 4 galvanized wire?

A. Gauge No. 4 wire.

Q. How would it be in size compared with that cord say, that attaches the electric light?

A. A little larger, I think.

Q. You think, and you consume about 12 feet you say?

A. 12 feet.

Q. 12 feet in 24 hours. Now, in this pipe you say you found scales of iron, you mean scales that were parts of this wire that had been disintegrated by the action of the acid in the jug?

696 A. No, sir.

Q. Where did the scales of iron come from?

A. From the pipe.

Q. How long did you use that pipe with your method?

A. All the time I have used the bleacher.

Q. And how long was that?

A. Oh, perhaps a couple of years, something like that.

Q. How often did you have to replace that iron pipe during that two years? A. Never had to replace it.

Q. One iron pipe lasted two years? A. Yes, sir.

Q. All right. Now, how did you bleach all your flour, or a part of it?

A. All of it with the exception of the low grade.

Q. Before you bleached it the color of your different grades of flour was readily discernible, was it?

A. Yes, sir.

Q. And after you bleached the different grades were they all the same color, or was there a difference then?

A. Well, I think that the clear flour takes a little more bleaching than the other, that is, it would show a little whiter.

Q. Than the patent? A. Yes, sir.

Q. After you bleach a clear flour?

A. No, understand me that I think it bleaches more in comparison.

Q. I see, but after you have bleached your patent flour and your clear flour there is a noticeable difference between those two, is there not? A. Yes, sir.

Q. Just as noticeable as there was before you bleached them. A. Well, no.

Q. Not quite so much? A. Not quite so much.

Q. Before you bleached, though, there was such a difference between your patent and straight, your patent and clear, that you could readily tell which is which by looking at it, could you not?

A. Why, yes, sir, comparing the samples with the standard; we have a standard to work by.

Q. A standard of comparison? A. Yes.

Q. That would be true if you were determining the color on anything, wouldn't it? A. Yes, sir.

697 Q. To see whether one thing is more so than the other you have got to have some standard to go by, haven't you? A. Yes, sir.

Q. And that applies to everything in which you use colors, whether it is bleached flour or anything else, doesn't it?

A. Yes, sir.

Q. Now, after you have bleached them there is a difference between the color of the patent and the straight or the patent and the clear, is there not? A. There is a little.

Q. Now, after you had bleached the straight or after you bleached the clear is there any difference between the color of those two and the color of the patent unbleached? A. Yes.

Q. How much? A. Well, quite a little.

Q. Readily observable?

A. Yes, now, understand me, this is a different white than the unbleached.

Q. How different?

A. Well, the unbleached will always show a creamy tint.

Q. Yes, and the bleached, what does it show?

A. And the bleached will not.

Q. Now don't you get them, they look just alike?

A. No, sir.

Q. Did you ever try to make them look alike?

A. Never did, I never thought I could.

Q. Did you ever get them so they look alike?

A. No, not exactly.

Q. Didn't you get them so you could tell one from the other? A. In color?

Q. Yes, sir. A. No, I don't think I ever did.

Q. Never did. You never got it then so but what between the patent unbleached and either the straight or the clear bleached, there was a noticeable difference in color, is that right?

A. No, of course there is a difference in color all right, but it is a dead color.

Q. All right. It is a different color then, was it?

A. The clear flour will show a more ashy gray than the patent will.

Q. All right. Then you never got it so but what the unbleached patent had a different color from the bleached straight or the bleached clear?

A. Never compared them to find out.

698 Q. Oh, did you never look at the unbleached patent and the bleached to see whether or not they had different colors? A. I have, but I never put them together.

Q. Well, you could tell by looking at them whether or not they are the same color, can't you? A. No, no.

Q. Well, do you know whether or not they are the same color? A. I do not.

Q. Sir?

A. I do not just exactly, there is a difference in the color there.

Q. Well, all right, that is what I am getting at, there is a difference in the color, is there? A. Why, sure.

Q. Always? A. Yes, sir.

Q. Now, you know that of your own personal knowledge?

A. Yes.

Q. All right. Now, when you have bleached the patent and then put it along by the side of the unbleached patent, now, do they look alike?

A. The bleached patent and the unbleached patent?

Q. Yes, sir. A. No, sir.

Q. Well, then, the fact is, as I understand it, as you have noticed it, that the unbleached flour, whether patent, clear or straight, always has a different color from the bleached patent or from the bleached flour, patent, clear or straight?

A. The unbleached?

Q. Yes.

A. Has a different color from the bleached, yes, sir.

Q. Always? A. Always.

Q. Noticeable? A. Yes, sir.

Q. Can see it? A. Yes, sir.

Q. Plainly? A. Yes.

Q. Anybody can, that is, anybody that has got good eyesight and reasonable sense of sight and can distinguish colors?

A. They ought to.

Q. And that was your experience there in your mill.

A. Yes, sir.

Q. Now, I want to find out a little about this taking tests that you made. You speak of 500 and some odd grams, how many loaves of bread did that make? A. One.

699 Q. Oh, you got five hundred and fifteen to 522 grams which makes this one loaf of bread, does it?

A. I baked it in one loaf.

Q. Oh, well, that is because I don't know nothing about grams, I supposed we had a car load of bread here maybe. Then you had just one loaf of each kind, did you?

A. Yes, sir.

Q. And you made just one test of each kind?

A. Yes, sir.

Q. Now, this flour that you performed these experiments with, did you grind it all at the same time? A. I did.

Q. Just as the mill was running?

A. Just as quick as I could make the change.

Q. Your bleacher was running all the time, was it?

A. No, sir.

Q. Or have you a way of cutting off the stream before it gets into the agitator?

A. Well, I took my unbleached first, then I started the bleacher to get this sample.

Q. And did you at that time test the bleached flour to determine the amount of nitrites in it? A. No, sir.

Q. Well, can't you tell this jury anything about the amount of nitrites in there? A. No, sir.

Q. You can't, don't know anything about it? A. No, sir.

Q. You don't know whether there was 1.8 per million or 700 per million? A. No, sir, or a thousand pounds.

Q. You don't know anything about it; you simply know you bleached it? A. I bleached it.

Q. With this process that you have described?

A. Yes, sir.

Q. And the extent to which it was bleached, or the amount of nitrogen peroxide that was used, you don't know anything about it? A. No, sir.

Q. And the amount of nitrites that was embodied in it you don't know anything about. A. No.

The Court: I don't understand this witness testified he was a chemist, or anything of that kind?

Mr. Smith: No, sir, this may be quite material in determining these tests.

Q. Now, you stored away these different sacks of flour?

A. I did.

700 Q. And part of them you said were stored in the light; describe that to the jury so we will understand what you mean by some of them being in the light?

A. Well, they have a small sack perhaps weighing five pounds of each, the bleached and the unbleached, and I placed them on a shelf in the mill there that there was light and air.

Q. That was in the mill where you were running the bleacher from day to day? A. I was not running the bleacher.

Q. Didn't you run the bleacher after that night?

A. No, sir.

Q. Oh, that is the time you quit running the bleacher, but maybe you don't understand what I mean, I want to make myself plain. At the time that this was stored there in the mill, this five months, I think you said, and some days, yes, five months and eighteen days, I believe you said, was the mill running during that time? A. Yes, sir.

Q. And were you bleaching flour during that time?

A. No, sir.

Q. So the bleaching was entirely discontinued during that five months and eighteen days? A. Yes, sir.

Q. That was after you had quit bleaching altogether?

A. Yes, sir.

Q. And it just stood up there on the shelf in the mill, did it?

A. We used it as a mixer, we used the agitator as a mixer.

Q. Well, where were those with reference to the agitator?

A. Over the flour bin.

Q. And they just stood there on a shelf in the mill during this period of time? A. The flour?

Q. This that you made the experiments with, the sample, but they were on a shelf in the mill, they just stood there on a shelf in the mill for five months and eighteen days?

A. Yes, sir.

Q. And those that you put in the dark, where were they?

A. They were under the flour bin, back of the hopper part.

Q. Well, were they in a box there? A. Yes, sir.

Q. And closed up tight? A. Yes, sir.

Q. Now, how many pounds did you have in each one of those? A. Had about five pounds.

701 Q. About five pounds, and then after the expiration of that time you made these baking tests? A. Yes, sir.

Q. And you took from the sacks that were in the light enough to make one loaf of bread each? A. Yes, sir.

Q. No test was made at that time, of course, to determine the nitrite contents of either one? A. No, sir.

Q. Did you test either one of them at that time to determine the amount of moisture in either one? A. No, sir.

Q. Did you test either one of them at that time to determine the amount of starch or gluten in each one?

A. No, sir.

Q. You made no test of it at all? A. No, sir.

Q. And did you make any test of that which was in the dark to determine the moisture content of either of them?

A. No, sir.

Q. Nor any other tests? A. No, sir.

Q. Did you personally attend to the baking? A. I did.

Q. And tell us in a general way, please, how you prepared it.

A. I weighed 340 grams of flour, taking 10 grams of yeast, 12 grams of sugar and 4 grams of salt, and 195 of water, mixing it together in a colander or beater, put it in the expansion case to raise to a temperature of 90, 85 to 90, let it raise, and placed it in an electric oven, and baked it thirty-five minutes.

Q. Did you bake all four of the loaves at the same time?

A. No, sir.

Q. Well, bake them one at a time? A. Yes, sir.

Q. No, two of them, then, were in the oven at the same time? A. Part of the time.

Q. Sir?

A. Part of the time, just the difference that it took me to mix them up and get them to the expansion case and the raising, and from the expansion case to the oven.

Q. You got one started? A. Yes, sir.

Q. And then you prepared another and put it in?

A. Yes, sir.

Q. In the meantime one of them had been baking some?

A. Yes.

Q. And then you prepared another one and got it started? A. Yes, sir.

Q. In the meantime the other two had been baking some?

A. Well, they wasn't all in at once, about two in at once, you see the difference.

Q. I see, so there were two loaves that were in the oven at the same time and the same identical time? A. No, no.

Q. Two of them were in there a part of the time together?

A. Yes, sir.

Q. The one that went in first and of course it came out first?

A. Yes, sir.

Q. And now after you had done all this, as to those that were in the dark, as I have it here, you found the weight on the next test or volume 519 as to 522; I believe that is the one that was in the dark?

A. Which one is it you are referring to now?

Q. The one in the dark; I did not take the figures; I said the weight I think you said of that was 519 for the bleached and 522 for the unbleached? A. In the dark?

Q. Yes, sir.

A. 519 was the bleached placed in the dark.

Q. Yes, and 522 the unbleached, is that right? A. Yes, sir.

Q. A difference of three grams? A. Yes.

Q. In the weight of that loaf of bread?

A. Yes, sir, three grams.

By Mr. Butler:

Q. Change in the volume, in weight?

A. No, that is weight.

By Mr. Smith:

Q. In volume each one measured 88 cubic inches, didn't it?

A. Yes, sir.

Q. Just the same in volume? A. Yes, sir.

Q. Now, you never repeated this experiment any other time to see if it would come out the same afterwards?

A. Oh, I have made a comparison bake of unbleached and bleached.

Q. But never with the same flours as you did this?

A. No, not with this same flour.

703 Q. Sir?

A. I baked the bleached and unbleached flour and tested that.

Q. But you never made a comparative test where you used the same degree of care to get your measurements exactly as you did here? A. Yes, sir.

Q. At other times? A. Yes, sir.

Q. Well, now, can you give us those figures?

A. No, I haven't them, I have no record of them.

Q. Well, why didn't you keep a record of them?

A. Well it was when I was bleaching, when I was bleaching right then.

Q. Well, did you make a record of them? A. I think so.

Q. Have you that record with you? A. No, sir.

Q. How many times did you perform that experiment?

A. Oh, probably half a dozen times.

Q. With the same grade of flour? A. Yes, sir.

Q. Some of it bleached and some unbleached?

A. Yes, sir.

Q. Using the same degree of care you did here?

A. The same.

Q. But you cannot give us those figures at all?

A. No, this test was made in regard to the aging more than anything else, why I made this test.

Q. Yes, what do you mean when you refer to the texture of the loaf, what do you mean by that?

A. Well, the pores, finer or coarse.

Q. Spongy or coarse, and I believe as you have said you could see no difference? A. No, sir.

Q. And as to the odor, I think you said there was no difference? A. Could not detect any difference.

Q. And as to the elasticity you couldn't see any difference?

A. Not in the dough.

Q. In the dough, yes. A. No.

Q. What do you mean by elasticity, the way it works?

A. By stretching it the way it works.

Q. As to that you couldn't see any difference?

A. No, I could not detect much difference?

Q. Now, I believe you said as to the gluten you thought
704 that there was a difference in the elasticity when that was washed out?

A. Yes, sir, there is a difference.

Q. I don't know of any food product, do you, that is made out of pure gluten?

A. No, I don't know of anything; I suppose you could buy pure gluten for bread.

Q. Probably, but your family,—is there any food product that your wife cooks out of pure gluten? A. No, sir.

Q. I don't know of any, do you?

A. No, I don't know of any.

Q. Did you ever at any time wash these different flours and weigh the gluten of each? A. I have.

Q. When did you do that?

A. Most every year the starting of the new wheat.

Q. Well, now, have you ever compared the gluten of the bleached and the unbleached from the same wheat grown at the same time, to ascertain the volume of that gluten?

A. No, I don't know as I ever compared them.

Q. Never did that; you compared different wheats in different seasons and so forth?

A. Yes, sir, that is I never compared them at the same time, understand me.

Q. Yes, sir.

A. That I never compared the unbleached and the bleached at the same time.

Q. That is what I understood you to say. Now, the wheat that you are grinding up there now is the spring wheat of that section of country? A. Yes, sir.

Q. You are not using any of the wheat that is grown in Kansas, Nebraska, or Missouri at all? A. No, sir.

Q. You don't know how your flour, then, compares in color with the flour produced from wheat in this vicinity?

A. I do not.

Q. I believe that is all. There is one thing I wish you would explain to us a little further. Your figures were in grams; Can we get that into ounces or pounds, how many grams in a pound? A. $454\frac{1}{2}$, I think.

Q. 454 grams in a pound? A. Yes, sir.

705 Q. So as you use it here the weight of this as you fix it, 419 to 422, was a little bit less than a pound, was it?

A. The flour?

Q. No, well, I don't know how much flour you took; how much flour did you take? A. 340 grams.

Q. Sir? A. 340 grams.

Q. That would be about a fraction of a pound?

A. Oh, it would be about 12 ounces.

Q. And as you had the loaf baked when it weighed 519 grams, that was a trifle over a pound? A. Yes, sir.

Q. This three grams that they differed would be what part of a pound, would be $3/454$ ths of a pound?

A. I suppose so.

Q. I forget how many grams you said to a pound?

A. 454 and $\frac{1}{2}$.

Q. About $1/150$ th of a pound. Now, isn't it true, or do you know whether or not that difference in the baking of bread in the weight of the loaf is within the limits of variation if you had exactly the same kind of bread and baked it twice at the same time? A. Oh, it might.

Q. Two loaves at the same time? A. I don't think so.

By Judge Scarritt:

Q. You said it might?

A. I have baked twenty bakings out of one sack and never varied a pound in volume.

By Mr. Smith:

Q. Now, of this flour you had in the light what was the weight of the unbleached loaf that you got out of that?

A. The unbleached in the light?

Q. Yes, sir. A. 515.

Q. And what was the weight of the unbleached?

A. This is the bleached, 515 is the bleached.

Q. All right, pardon me, which is that, bleached or unbleached? A. Bleached.

Q. And of the bleached you had in the dark was how much.

A. 519.

Q. And those two flours were milled at the same time?

A. Milled at the same time.

Q. Out of the same wheat? A. Yes sir.

Q. So that the difference between those was greater than the difference between the two loaves you had in the dark, wasn't it?

706 A. Yes, sir, there was a little more difference between the two loaves in the light than there was in the dark.

Q. And yet those two loaves of bread were made out of flour that is milled at the same time?

A. Yes, sir.

Q. Bleached in the same way? A. Yes, sir.

Q. Kept exactly the same length of time?

A. Yes, sir.

Q. And baked exactly the same way? A. Yes, sir.

Redirect Examination

By Mr. Butler:

Q. Now, with respect to the degree of bleaching of these four specimens, two of which were stored or aged in the dark, a period, put under the conditions you have described, and two of which were aged in the light, was it a strong bleaching or a light bleaching?

A. Just light as I could bleach, light as I could bleach.

Q. As light as your apparatus would permit?

A. That is with the one notch of feed.

Q. Yes, sir, I understand, the purpose of that examination was particularly to ascertain the effect of bleaching?

A. Yes, sir.

Q. The others that you did from time to time as you bleached you did not preserve? A. No.

Q. And in those cases the flour was bleached to that degree that you customarily used? A. Yes, sir.

Q. When you said to Mr. Smith that you bleached all except low grades, what percentage of your total edible flour would that be? A. 95 per cent.

Q. And that the clear took more bleach, that is whiter than, more than the patent?

A. In comparison with the same bleached.

Q. Yes, with the same amount of bleaching re-agent there would be a greater reduction in the clear than in the patent?

A. Yes, sir.

Q. Because it was darker to start with, I suppose?

A. Well, there was more yellow, more fat, I suppose.

Q. Now, what percentage of clear was there, about 15 or 20? A. 20 to 25.

Q. 20 to 25? A. That is of the 95 per cent.

707 Q. Yes, sir, when you said purified middlings what does the word "purified" signify?

A. In dressing the mill with air and bolt slick, taking the best of them off, grinding them.

Q. What becomes of the substances taken out in this purification or by the purifier?

A. Some of it goes to the feed, some of it to the lower grades of flour.

Q. Some of it goes to the clear? A. No.

Q. To what is called the low grade?

A. To what is called the low grade.

Recross Examination

By Mr. Smith:

Q. Calling attention, now, to the patent flours, did you make patent flour? A. Yes, sir.

Q. What per cent did you put in your patent?

A. Between 75 and 80 per cent.

Q. Well, what makes the difference?

A. The wheat, the bearing of the wheat.

Q. You got more patent flour out of one kind of wheat than you can another?

A. Oh, it will vary, you cannot keep right at 85, or right at 80; it is bound to vary about from day to day.

Q. You are making 80 per cent now, are you?

A. I wouldn't say that I was making quite 80.

Q. Well, will you say that you are not; you are making about from 75 to 80 now? A. 75 to 80.

Q. Always have done that, have you?

A. Yes, sir.

Q. Ever made more than that? A. No, sir.

Q. But you have always run it up with the straight?

A. Yes, sir.

Q. Now, would there be as much difference between your 80 per cent patent and another man's 55 per cent patent, cor-

respondingly, as there would between an 80 per cent and an 85 per cent patent?

A. How is that?

Q. Maybe I don't make myself plain. Would there be any difference between a 60 per cent patent made out of the same grade of wheat that you are using and your 80 per cent patent?

A. What do you mean in per cent or in grade?

Q. Quality of the flour, quality?

708 A. Well, I don't know, it depends on where the flour is taken from in the mill.

Q. It depends on where it is taken from?

A. Yes, sir.

Q. Then you may be able to grind so as to get an 80 per cent patent just as good as a 60 per cent patent?

A. I may, it depends on where he takes his 60 per cent.

Q. Depends a good deal on the method and the equipment of the mill and how he runs it?

A. He can take his break flour off and run into patent and make a 60 per cent.

Q. How do you brand this 80 per cent flour that you put out? A. First patent.

Q. Then do you have some other patent besides?

A. Have second patent, that is a 95 per cent.

Q. Then you get a 95 per cent flour that you put on the market as a second patent, do you? A. Yes, sir.

Q. How do you brand that? A. Second patent.

Q. Got any name to it? A. Hawthorne.

Q. That is 90 per cent of the entire output of the wheat, is it?

A. No, sir, that is 95 per cent of the output of the flour, taking out the low grade.

Q. What do you call the low grade, what has been denominated here the red dog?

A. Well, we call it low grade.

Q. That is something that you don't use as flour at all?

A. Yes, sir.

Q. That is feed or bran, or whatever it may be?

A. It goes into feed.

Q. The brands, 95 per cent of all of them which you get out are called flour? A. Yes.

Q. And as the second patent you include in that 95 per cent?

A. The second patent is a 95 per cent.

Q. And in the first which is the best flour, you make there at the mill? A. Yes, sir.

Q. You get as high as 80 per cent?

A. Yes, sir, of the 95 per cent, not of the whole amount.

- Q. 80 per cent of the 95 per cent? A. Yes, sir.
- 709 Q. And what becomes of the other?
A. It is low grade.
- Q. Now, let's assume that you are starting in today to make your highest grade patent? A. Yes, sir.
- Q. Now, how many different grades of flour when you are running your patent?
A. I may start on patent and change over on straight.
- Q. Let's not change over, let's assume you are going to run the mill today to make all patent flour, the best you make.
A. Yes, sir.
- Q. Now, how many different kinds of flour will you be making that day?
A. I will be making three with the low grade.
- Q. By that you mean the red dog, the refuse?
A. Yes, sir.
- Q. We leave that out, that is not flour? A. Yes, sir.
- Q. So you are having two streams running that you call flour? A. Yes, sir.
- Q. One of them is your patent? A. Yes, sir.
- Q. And what do you call the other? A. Clear.
- Q. Now, in that total output of the mill which you call flour, leaving out of consideration the bran and the red dog, because you don't call that flour, yourself, what per cent is put in your patent streams? A. 75 or 80 per cent.
- Q. And the balance of it will be in the clear?
A. Yes, sir.
- Q. Which would be from 20 to 25 cent of the flour output?
A. Yes, outside of the low grade.
- Q. Oh, well you don't call that flour at all, do you?
A. No, no.
- Q. Of this which you call flour? A. Yes.
- Q. You will run 30 per cent into your patent and you run the balance into your clear? A. Yes, sir.
- Q. Of course you get a per cent of bran and other things like that that you don't call that flour at all, isn't that right?
A. Yes, sir.
- Q. What do you call your first patent flour?
A. White Rose.

710 Delbert R. Athey, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

- Q. D. R. Athey? A. Yes.
- Q. What is your first name? A. Delbert.
- Q. Delbert? A. Yes, sir.
- Q. Delbert R. Athey. Where do you live?

A. Des Moines, Iowa.

Q. What is your business?

A. I am a millwright and also a miller.

Q. How long have you followed those occupations?

A. Since 1889.

Q. Do you know the process called the Alsop process of bleaching flour? A. I do.

Q. Ever install any plants for treating flour by that process? A. I have.

Q. Have you seen them work? A. Yes, sir.

Q. How many of them have you installed?

A. I have installed six new ones and reset two old ones that have been in use.

Q. Are you familiar with the manner of their use?

A. Yes, sir.

Q. You may tell us whether or not any smell or odor attends operation? How many have you seen work altogether?

A. Oh, I have seen probably thirteen, fourteen different machines in operation.

Q. You may tell whether or not there are any fumes or the odors of any fumes observable about mills where they are employed there? A. There is.

Q. What has been your experience in that regard; has it been uniform, have you always found it or only sometimes?

A. I always detected that odor wherever the mill was using the bleachers.

Q. And what was the odor; did you get the odor of the gas that came in that bottle marked "Exhibit 6" that Dr. Shepard brought in? A. Yes, sir.

711 Q. And how did the odor compare with that, alike or different?

A. It would appear it smelled just like that.

Q. Have you been able to observe the effect of the Alsop modified air or NO₂ diluted with atmosphere, the thing they use to bleach flour, its effect upon metals, tanks and pipes and so forth? A. Yes, sir, I have.

Q. What has been your observation in that regard?

A. Well, it corrodes the tanks and pipe; I have noticed it in two different mills.

Q. Where?

A. One was at Loomis, Nebraska, and the other was at Carroll, Iowa.

Q. Now what was the effect on the tanks, these expansion tanks, I mean whatever it is, this is the tank between the gas generator to the flour shaker?

A. Well, the one at Loomis, Nebraska, was very badly corroded, especially where all the seams up and down the tank and the seams around the top and bottom of the tank was

eaten through in places, and it was a continuous rust line around and up and down where the seams were.

Q. The galvanized iron tank was open there? A. Yes, sir.

Q. How long had it been in use?

A. Well, the miller told me—

Mr. Smith: I object, this is hearsay testimony, incompetent.

Q. Had you seen it before? A. No, sir.

Q. You did not install it?

A. I did not, I just reset it.

Q. And you would not know, you were called to put in a new one or reset it?

A. No, we was remodeling the mill and in remodeling the mill we had to change the position of the agitators in the mill, and consequently we had to change—take down the pipes, and change them also.

Q. Yes. Now about this tank, did you put it back in there and use it? A. Yes, sir; we left it right where it was.

Q. Well, did you say it was open there?

A. It was in places with pin holes.

712 Q. Well, would gas leak through it all the time, or how about that, could it be used, is what I am trying to get at?

A. We used it by pasting up those holes with cloth, made a paste, flour paste.

Q. Now then you took down the pipes connecting the gas machine too, did you, with the flour shaker and with this tank also?

A. From the tank to the agitator we took that pipe down.

Q. From the tank, but not from the gas machine to the tank? A. No, we did not disturb that.

Q. How did you find the pipes that reached from the tank to the very place where the flour was shaken in the agitator?

A. How is that?

Q. The pipes that you examined, took down, ran from this tank to the very place where the flour was shaken in the agitator? A. Yes, sir, it went right into the—

Q. Well, how were those pipes when you took them down?

A. Well, they were corroded on the inside and had rust scales and some powdered substances that resembled wood ashes a little bit, but it was mostly of the scaly yellowish color.

Q. And the quantity of it?

A. Well, we got about, I should judge, a quart of such stuff out of the pipe, about 10 feet long, or approximately that.

Q. How big a pipe was it? A. Two inch pipe.

Q. And what kind of metal was it, like a galvanized iron or galvanized tin roof or water spout such as has been referred

to in cross-examination of other witnesses, or was it a thick iron pipe?

Judge Scarritt: I object to that as commenting on the testimony of other witnesses, if your Honor please; that is not the proper way to cross-examine a witness.

The Court: Well, tell what kind of pipe it was.

By Mr. Butler:

Q. Yes.

A. Well, it was galvanized iron two inch pipe such as used for steam pipe or water pipe.

Q. Now as respects—did you ever open an agitator while it was at work? A. Yes, sir.

713. Q. Now tell us whether or not there was any odor of this gas such as was "Exhibit No. 6"?

A. Yes, you could smell the gas when the agitator was open.

Q. Have you been in the packing rooms where the flour is packed into sacks? A. Yes, sir.

Q. What is the effect in that regard as to the smell?

A. Well, we could smell the gas there.

Q. Now with respect to flour which was exposed either about the spouts or agitator or elsewhere for a long time to this bleaching medium; have you observed any such flour in angles and corners, and so forth? A. Yes, I have.

Q. What was its appearance?

A. Well, it was of a very yellow color, what I call saffron color, and if you took it in your hand you could smell it, smelled like the gas that goes into the bleachers.

Q. About the mills that you were familiar with where this Alsop process was employed, you may tell whether or not there were necessarily angles there and corners and places where flour would lodge over the bottom?

A. Yes, sir, particularly if the spout in going from the agitator directions at any place, where the direction was changed there would always be a smell there of flour lodged there that had been there some time.

Q. Yes, sir. Now your flour lodged in such a place as that?

A. Yes.

Q. Turned saffron color and offensive in smell?

A. Yes, sir.

Q. That is after it had passed through the agitator?

A. Yes, sir.

Q. For example, the agitator is so located that the spout running from it to the packing room has a bend or turn in it, then the flour would lodge about the angles or bend or turn in the spout would take on this color, is that it?

Counsel for claimant objected to the question as leading and suggestive.

A. That is where it came from.

Judge Scarritt: The only way we can save time is to cut Mr. Butler off from testifying, as I see it.

714 Mr. Butler: Well, let that be stricken out.

Q. Now Mr. Athey, describe the location of these spouts where the flour would accumulate, whether before or after it went in, and all about it, so that we will not lead and will save time and get along, how the flour looked and how it smelled and whether there was much of it or little of it, and whether such things are necessary in mills.

Mr. Smith: The witness has now been thoroughly instructed.

The Court: Go on and answer, go on and answer.

A. Well, in this particular instance at Loomis, the flour came out of one end of the bleacher directly above the floor and there was a straight piece of spout to the floor, and from the floor there was a spout that went angling down to the bottom of the joists, and from there it went, of course, at right angles that way, and right in the right angle turn there was probably, Oh, in the neighborhood of a handful of this yellow flour laying right in there; and I also discovered that there was some of it laying in the bottom of the bleachers. I discovered it in the bottom of the bleacher right where it discharged.

Q. Do you mean the conveyor or the gas machine or the tank? A. No, the agitator.

Q. The agitator?

A. I had occasion to take the spout off of there and there was flour about half an inch thick laying in right around in the bottom of the circle of the agitator that was of this yellow color also, but not so bad as the one down in the spout.

Q. How much in quantity of that?

A. Well, I scraped out possibly a pint, a pint and a half of it.

Q. Do you know whether or not in ordinary operation more or less flour adheres or condenses upon the wall of the agitator or has your observation ever been such to observe that?

A. It has not.

Q. Have those agitators glass in them that you can look in and see whether the flour is running or whether some of it adheres like a frost or snow or whatever it is?

A. Not the ones that I have seen.

Q. I think that will be all.

Cross-Examination

By Mr. Smith:

- Q. Are you a miller or a millwright? A. I work at both.
- Q. What is your business now? A. Millwright.
- Q. By that you mean you construct mills? A. Yes, sir.
- Q. Put them together; you are not a miller now?
- A. No, sir.
- Q. How long since you have been a practical miller?
- A. I quit milling in 1904.
- Q. And you are not at the present time engaged in any milling industry at all? A. No, sir.
- Q. Now you were never at the mill owned by the Lexington people? A. No, sir.
- Q. You don't know anything about how it is constructed?
- A. No, sir.
- Q. No two mills, I suppose are constructed alike, are they, exactly? A. No, sir, I have not seen them.
- Q. The way these spouts lead, and whether they have angles or joints, would not be the same in any two mills?
- A. I should say not.
- Q. You never saw two that were alike, did you?
- A. No, sir.
- Q. And in testifying, what you saw here, you are testifying to what you observed out at the mill in Loomis, Nebraska?
- A. Yes, sir.
- Q. No building that you have seen in the Lexington mill?
- A. No, sir.
- Q. You don't know anything about whether they have any of these angles or joints where there would be this stuff collected that you refer to? A. No, I do not.
- Q. This would be in angles or joints that lead from the agitator to where the flour is packed, is it? A. Yes, sir.
- Q. The angles or joints that would provide the agitator wouldn't have to do with it would they?
- A. I never discovered any there.
- Q. It would be such flour as goes from the agitator to the place where it is packed or sacked?
- A. That is where I discovered it.
- Q. And I believe you said you don't know anything about what the Lexington mill has there? A. No, sir.
- 716 Q. And you never saw two mills that were exactly alike that way did you?
- A. No, I never saw two mills exactly alike.
- Q. Now this flour that you observed there you say was saffron yellow? A. Yes, sir.
- Q. As Bro. Butler would have it is some like an orange, is it? A. Yes, sort of an orange color.

Q. As pronounced as that; the color is as distinct as that color, orange, is it? A. Yes, sir.

Q. You never saw any flour like that put on the market, did you? A. No, I never did.

Q. You never saw any flour like that in a sack, did you?

A. No, sir.

Q. And I believe you said it was that—was it in the agitator that you took out a pint and a half? A. Yes, sir.

Q. You cleaned it out, did you?

A. Where I could reach it in there with my hand in the discharge hole, pull it out.

Q. How much was that agitator?

A. Why, it was probably about 18 inches in diameter and 6 feet long.

Q. Round or square? A. Round.

Q. And as the mill goes it revolves?

A. The beaters inside revolve.

Q. Pardon me, hand me that glass measure there, we'll see if we can illustrate by that. Now was the agitator somewhat the shape of this glass that I have in my hand?

A. Yes, sir, circular.

Q. And in comparative dimensions about the same as that, its diameter as compared to its length would be about the same as the bottom of this compares to its length?

A. Well, approximately.

Q. About that? A. In proportion to that.

Q. Now as that goes, it revolves, does it?

A. No, that does not revolve.

Q. No, you are right, the wheels or the fills on the inside of it go around? A. Yes, sir.

Q. And this is what changes, but the agitator itself is circular the same as this?

A. Yes, but it remains stationary.

717 Q. Yes, sir, that is right, the bleaching mechanism comes in at one end of it, don't it? A. Yes, sir.

Q. And the flour also comes in there? A. Yes, sir.

Q. And the flour goes out at the other end?

A. Yes, sir.

Q. And while the flour is passing through with it, the flour, the color is changed? A. Yes, sir.

Q. And from that the flour is drawn off in the spout and goes to the packer? A. Yes, sir.

Q. What was the inside of that agitator, was it wood or was it lined with metal?

A. Why, the beaters you mean?

Q. No, no, the agitator itself?

A. It was galvanized iron on the sides.

Q. On the inside? A. Yes, sir.

Q. Lined with galvanized iron?

A. No, the sides was made of sheet galvanized iron.

Q. The whole agitator was made of galvanized iron?

A. Except the heads and they were cast iron.

Q. It is not wood at all?

A. No wood at all, only on the beaters.

Q. Was there cracks or crevices in the wood where anything could cling to? A. No, sir.

Q. It is just a circular galvanized iron pipe?

A. Yes, sir.

Q. Now particles of flour don't stick very much to the surface of galvanized iron when the agitators are going around pretty lively, does it?

A. It does not stick to the sides, but might cling to the bottom.

Q. Stick some places to the corners, the crevices?

A. No, there is no crevices there; right where this discharge casting was, for the flour to discharge, there are rivets stuck all through there.

Q. And some of it would cling to the head of the rivets, is that it.

A. Well, it seemed to come down to as far as the rivets, and then it piled up there probably half an inch deep.

Q. That is where the flour was being drawn off from the agitator, wasn't it?

A. Well, that has been laying there an indefinite time, 718 I don't know how long.

Q. At the place where you found this is where the flour reaches the agitator to go to the packer?

A. Yes, sir, right at the edge of that.

Q. Now, the pipe which you examined was the pipe running from the reservoir to the agitator? A. Yes, sir.

Q. You say there was a pipe such as used in conveying water around the house where the plumbing is bad?

A. Commercial two inch galvanized pipe, that is what it was.

Q. About how big was it in diameter?

A. Why, the inside diameter was 2 inches possibly a little more.

Q. And in that you found some rust I believe you said?

A. Well, it was, yes, it was a sickly rusty looking material.

Q. And like ashes?

A. And there was some powdered stuff that resembled wood ashes to a certain extent.

Q. Resembled wood ashes, light color?

A. No, it was more of that gray color.

Q. Well, that is light color, isn't it?

- A. Well, yes, sir.
- Q. You would describe it as a gray color, would you?
- A. Yes, sir.
- Q. Now did you notice that color particularly so that you know that it was gray?
- A. Well, I know it was gray, but I could not—
- Q. It was not as dark as that bottle of ink, was it?
- A. No, sir.
- Q. Was it as gray as that blotter?
- A. Well, it was of a darker gray than that blotter.
- Q. It was a darker gray than that? A. Yes, sir.
- Q. How would it compare with this piece of board over there?
- A. Well, they are more of a yellow cast.
- Q. Do you see anything around here that you can compare its color with that you can think about what it is?
- A. Well, that approaches it the nearest, although as I remember it was a little darker than that yet.
- Q. That is some sort of a chaff or bran out of the wheat, isn't it, and it is more the color of bran, was it?
- A. Well, some wheat bran but it wasn't—
- 719 Q. You say it was about the color of that?
- A. Yes, but if I remember right, it was a little bit darker, a little bit darker than that, and it wasn't as coarse as that, it was of a finer—
- Q. No, I suppose not. Do you know how long that mill had been running before you went there?
- A. Well, I guess it had been there—
- Q. Well, do you know anything about it, that is what I am getting at?
- A. Only what I was told.
- Q. You never had been at the mill before?
- A. Never before.
- Q. And how long were you there?
- A. Seven or eight weeks.
- Q. You were there for the purpose of installing another mill or remodeling that mill?
- A. I took out the roller mills, the old roller mills, and put in new ones and restored the mill.
- Q. That was the purpose for which you were there?
- A. Yes, sir.

At this point the further hearing of this cause was adjourned until 2 o'clock p. m.

Thursday Afternoon, June 9, 1910.

Pursuant to adjournment taken as above noted, court met, at two o'clock p. m., Thursday, June 9, 1910, and proceeded with the trial of said cause, further as follows:

Charles J. Wolaver, called as a witness on behalf of the Government, being first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live? A. Muskogee, Oklahoma.

720 Q. And your business, Mr. Wolaver?

A. Flour business.

Q. As a merchant, or broker?

A. As a broker, and buyer.

Q. Have you ever had any experience, as a miller, as a manager of a mill? A. Yes, sir.

Q. You are not a journeyman miller, by trade?

A. No, sir.

Q. Are you a mechanic? Have you had any mechanical education? A. Yes, sir.

Q. And what is your trade, or what mechanical education, —along what lines? A. Installation of machinery.

Q. You were a machinist, by trade? A. Yes, sir.

Q. How long since you were manager of a mill?

A. Flour mill?

Q. Yes. A. About three years.

Q. What was the mill, and where was it located?

A. Purcell Mill & Elevator Company, in Purcell, Oklahoma.

Q. Did that mill bleach its flour, while you were its manager? A. Yes, sir.

Q. What process, or bleaching medium was employed by that mill? A. The Williams process.

Q. Are you familiar with the turkey hard wheat?

A. Yes, sir.

Q. And the yellow berry that is sometimes found in it?

A. Yes, sir, to some extent.

Q. What do you say as to the quality of this yellow berry, assuming that turkey red, with turkey hard wheat, had ten to thirty per cent of yellow berry in it? You may state whether or not that is in truth and in fact, first quality, hard wheat.

A. No, sir.

Mr. Helm: We object to this, as calling for an opinion and conclusion of the witness.

The Court: You may answer.

A. (Continuing) No, sir, I would not consider it a first quality hard wheat.

By Mr. Butler:

Q. It is not so considered in the trade? A. No, sir.

Q. What is a patent flour? A. You mean, what—

721 Q. (Interrupting) What is meant by the term "patent flour"?

Mr. Helm: We object to that, if Your Honor please, for the reason it is shown by the testimony so far that there is no patent flour, as distinguished from all other flours.

The Court: You may answer.

A. My opinion of the patent flour is flour made from best particles of the wheat—purified middlings.

By Mr. Butler:

Q. Did you hear the testimony of Mr. Overton Tucker who milled the flour that was seized in this case? A. No, sir.

Q. Can you tell as whether or not, a ninety-per-cent patent can be made from wheat consisting of turkey hard, in which there is ten to thirty per cent of yellow berry?

A. I don't think so.

Q. Did the Purcell Mill & Elevator Company, when you were its manager, before it commenced bleaching, with this Williams process, make a patent flour? A. Yes, sir.

Q. What per cent?

A. About sixty per cent. Sixty to sixty-five.

Q. Sixty to sixty-five per cent? What kind of wheat was used? A. Oklahoma soft wheat.

Q. And after you commenced bleaching, did you use the same kind of wheat? A. Yes, sir.

Q. What percentage of patent, then?

A. We increased our percentage of patent up to eighty-five and ninety per cent.

Q. From the same kind of wheat?

A. Same kind of wheat.

Q. And, by the same milling method, except that you increased the patent? A. Yes, sir.

Q. What effect did the bleaching have upon the appearance of the long patent, as compared with the appearance of the short patent, before you bleached it? A. Made it as white.

Q. From your experience with bleaching flour, can you tell us whether or not the quality of the flour is improved by bleaching?

Mr. Helm: We object to that as calling for a conclusion.

The Court: Objection overruled.

722 A. I do not think it is.

Mr. Scarritt: I don't believe Your Honor understood the question.

The Court: He asked if the quality of the flour is improved by bleaching?

Mr. Scarritt: Yes. That is the very proposition that the jury is to decide.

Mr. Butler: On the evidence.

Mr. Scarritt: Not on his opinion.

Mr. Butler: But they can take it into account.

Mr. Scarritt: No, they cannot.

Mr. Butler. I thought the court so ruled.

Mr. Scarritt: It is an improper hypothetical question. He is stating it as a fact, and not an opinion.

By Mr. Butler:

Q. Well, as to the flour made by the Purcell Mill & Elevator Company, that you observed, you may tell us whether or not, in your opinion, the bleaching improved the hard wheat flour. A. The quality? It did not.

Mr. Scarritt: Same objection.

The Court: Overruled.

Mr. Scarritt: We save an exception.

By Mr. Butler:

Q. Have you been able to form any opinion as to whether or not it injured it, from your examination?

Mr. Scarritt: Same objection.

The Court: Overruled.

Mr. Scarritt: Claimant excepts.

A. I am of the opinion that it did, to a certain extent.

By the Court:

Q. Did what? A. Injure it.

By Mr. Butler:

Q. In case of bleaching, to various degrees—light
723 bleaching, medium, and heavy or over-bleaching—what is the comparative effect upon color?

A. The more you bleach the flour, the whiter it gets.

Q. The output of your mill found market in what trade and for what purpose?

A. Southern Oklahoma, and Texas, to the retail grocers.

Q. Did you, yourself, make any comparison of biscuits made from the sixty per cent patent, of the kind you were making before you commenced to bleach and of the ninety per cent patent after you bleached to see how the color of the biscuits from the ninety per cent patent, bleached, compared with the sixty per cent patent, unbleached? A. Yes, sir.

Q. Where did you make that experiment?

A. Made it at home.

Q. Was it made by the ordinary method employed in your house? A. Yes, sir.

Q. And no matter of weighing or anything of that sort?

A. No, sir.

Q. Just for the simple purpose of showing the relation of color? A. Yes, sir.

Q. What did you find?

A. I found there was very little difference in the color.

Q. You found there was very little difference in the color? Can you tell us which was of the lighter, or more white color?

A. The bleached was the lighter, and more white. The unbleached had a creamy cast to it.

Q. During the time that you continued to bleach, what percentage of patent did you maintain?

A. During the time that we bleached?

Q. That you continued to bleached, yes.

A. From eighty to ninety per cent.

Q. From your observation of this bleached flour, have you been able to form an opinion as to whether bleached flour improves, after bleaching to the same extent as does unbleached flour? A. Yes, sir.

Q. And whether it improves, at all? A. Yes, sir.

Q. What is the fact in that regard?

A. It does not improve, in my opinion.

724 Q. In the trade which you supply in the absence of bleaching, or before bleaching what value, if any, did color have as an index to quality?

A. It was the index to quality, in the trade. We sold to the trade that—what we called a biscuit trade.

Q. And the color, you say, was the index?

A. Was the index by which we sold the most of our flour.

Q. What is the truth, as respects that matter, with bleached flour—flour that has been bleached?

A. We was able to supply the same trade with our product after bleaching in the bleacher and increasing the per cent of patent.

Q. Now, as respects quality of bleached flour—

Mr. Scarritt: (interrupting) Did you ask what the color of it was—the whiter it was the better?

Mr. Butler: Yes, other things being equal, whiteness indicated better grade. That is what you mean?

Mr. Scarritt: Yes.

By Mr. Butler:

Q. I say, in the absence of bleaching, other things being equal, the color indicates the better flour—whiter color, or lighter color indicates the better flour?

A. Yes, in the absence of bleaching.

Q. Yes? Now, what I wanted is to contrast that with the situation, or compare it with the situation, for bleaching—in the cases of bleached flour. Does whiteness indicate anything, as respects quality, and if so, what?

A. Yes, sir, it does.

Q. In the case of a bleached flour? A. Yes, sir.

Q. Now, how is that?

A. Because we sold our flour, practically on its color.

Q. Yes? That is, the patent and high grade?

A. We supplied the same merchants.

Q. Well, now, what is it you mean by that—does the whiteness of bleached flour, in truth, indicate anything or does it simply make it look like the high grade flour which is not bleached? That is what I am trying to get at.

A. [I] makes it look like a high grade flour, so that we was able to hold our trade.

725 By Mr. Scarritt:

Q. That is, your trade wanted a white flour, as I understand. A. Wanted a white flour, yes, sir.

By Mr. Butler:

Q. Now, respecting when you made a sixty or sixty five per cent patent flour, when you were milling there before you commenced to bleach—sixty and sixty five per cent patent flour—did you also make it clear?

A. We made what we called a baker's—same thing as a clear.

Q. Yes? That is what is meant, by some of the others here who use the balance after the patent is taken out, and call it a clear, and you call it a baker's? A. Yes.

Q. What is the color of the baker's as compared with the patent, before bleaching? A. Darker.

Q. How is that? A. Darker.

Q. Now, what effect upon appearance would be produced by bleaching of the baker's grade, and leaving the patent unbleached?

A. We could bleach the baker's grade until it was as white as the patent unbleached.

Q. Bleaching would bring that to the whiteness of the patent? A. Yes, sir.

Q. And that is the case of winter, soft wheat?

A. Yes, sir.

Q. And I understand that the winter, soft wheats, naturally make a very white flour. Is that right?—as compared with hard wheats. A. With the hard wheats, yes, sir.

Q. Either the hard, winter wheat, or the hard spring wheat?

A. Yes, sir.

Q. So, as a class, the winter soft wheats produce the whiter flour, do they not? A. Yes, sir, unbleached.

Q. Unbleached? Did you ever observe any flour in your mill that was over-bleached, or subjected too long to this bleaching gas? A. Yes, sir.

Q. Just describe to the jury your experience in that regard.

726 A. After we had the bleacher in, for about—

Q. (interrupting) Speak loudly.

A. (continuing) About a couple of months, we had some flour returned to us because it contained some yellow flour—very yellow, and also some green specks, and we went out,—at least I went out and investigated it and we took the top off of the conveyor, and we found that the flour that had deposited in parts of the conveyor, that the conveyor did not take it out, turned yellow. And also we used to connect the rubber hose to the conveyor, a brass coupling. It seemed that the gas coming in contact with that brass coupling made a green substance.

Mr. Helm: Mr. Witness can you speak a little louder? We can't hear a word.

A. (continuing) We found that the gas coming in contact with this brass coupling made a sort of green substance that lodged in the conveyor, and would break loose in chunks and go out into the flour. After that we had to clean out the conveyor about once every week.

By Mr. Butler:

Q. You say the effect of this gas coming upon some of the fastenings to the hose was to produce a green substance?

A. Yes, sir, it was a brass coupling.

Q. Now, as to the yellowness produced in the flour that was subjected too long to that, about how yellow was that—this flour that was returned, for example?

A. Well, it has been described, about as yellow as sulphur, and I think that is right.

Q. About the color of sulphur? A. Yes, sir.

Q. Was this Purcell Milling & Elevator Company still bleaching when you left it? A. Yes, sir, still bleaching.

Q. When did you leave it? A. I left it in 1907.

Mr. Butler: I believe that is all.

Cross-Examination

By Mr. Helm:

Q. Your name is Wolner, you say? A. Wolaver.

Q. How do you spell it? A. W-o-l-a-v-e-r.

Q. Where do you now reside?

A. Muskogee, Oklahoma.

727 Q. And what is your present business?

A. My present business is a wholesale flour or brokerage business.

Q. At Muskogee? A. Yes, sir.

Q. How long have you been in that business?

A. Been in that business since January, 1909.

Q. You have not been in the milling business for the last three years?

A. I have been in the milling business, but not in the flour business?

Q. You have not been manufacturing flour?

A. Not flour, no, sir. We are manufacturing—I erected a plant in Muskogee, and we manufactured grain and feed and handled feed and corn meal and such things.

Q. You are in that business now?

A. No, I am not connected with that.

Q. What was your position with the Muskogee mill?

Mr. Butler: Purcell mill?

Mr. Helm: Purcell mill.

A. The Purcell mill?

Q. Yes. A. I was manager of the mill.

Q. You were not the miller? A. No, sir.

Q. You were not the practical miller, yourself?

A. No, sir.

Q. Your business was to act as the business manager, was it?

A. Business manager and to superintend the mill, as well.

Q. You employed the help and bought the wheat and sold the output? A. Yes, sir.

Q. How long were you in that position?

A. About five years.

Q. Were you in the bleaching business during that five years? A. Not all the time?

Q. How much of the time?

A. We put the bleacher in in the spring, I think of 1905 and used it in 1905 and '6, up to the time I left in 1907.

Q. Then, you left the mill?

A. Yes, sir, it was still in there.

Q. Where did you get your supply of wheat which you used?

A. From Oklahoma and Kansas. Some from Northern Kansas, when it was scarce in Oklahoma.

728 Q. For the benefit of the jury, you may state where Purcell is located,—in what part of Oklahoma.

A. Purcell is located in the southern part of Oklahoma on the Santa Fe railroad, about thirty miles south of Oklahoma City.

Q. And how far from the Texas line?

A. I think about one hundred miles.

Q. About one hundred miles north of Texas?

A. About one hundred miles north of the Texas line, yes.

Q. You put in a Williams process, you say?

A. Yes, sir.

Q. And what was the capacity of your mill?

A. About six hundred barrels.

Q. Did you run it to its full capacity during that time?

A. Not all of the time, sometimes we ran half the time, sometimes full time, sometimes a day or two out of the week.

Q. Did you have the mill shut down any of the time?

A. Yes, sir.

Q. What portion of the time?

A. It is pretty hard to say; depending on the trade. In a busy season we ran all the time. When the trade was down we ran, sometimes two or three days in the week and sometimes day time.

Q. Your product was marketed in the South, you say?

A. In Southern Oklahoma and Texas and some in Louisiana.

Q. Now, your experience in the using of this bleacher, was, you say, you increased your percentage of patent? Is that so?

A. Yes, sir.

Q. Did you make any change in your mill machinery?

A. No, sir.

Q. How do you ascertain the patent flour in an ordinary mill? How do you make different grades of patent with the same machinery in the same mill?

A. Well, I generally leave that to the miller, he has a standard to mill by.

Q. You don't know anything about that?

A. Oh, yes, I know something about it, but I didn't do any of that myself.

Q. Can you describe to the jury how you could make a sixty per cent patent with a mill equipped in a certain way, and make a ninety per cent patent with the same mill, equipped the same way? A. Yes, I think so.

729 Q. Tell the jury how you would do that.

A. Without bleaching we, of course, took certain streams of flour, that go from the different machines and

threwed them into what we called our patent flour. Of course, we take just as much of it as we possibly could, to keep it up to a certain standard of color and quality.

Q. Now, let me interrupt you just there. Now, that flour had a certain standard of color, didn't it?

A. That patent had a certain standard of color, yes.

Q. And you associated your color with your patent flour? That was your standard, wasn't it?

A. That was our standard.

Q. Now, what was your color? Describe it to the jury.

A. Well that was white.

Q. Was it a pure white, or, as has been described by many of the witnesses here as a creamy white?

A. Well, a creamy tint, but not so much as would be if we were milling hard wheat or making hard wheat flour.

Q. That is the wheat you were using was softer wheat?

A. Softer wheat and we were milling it down softer.

Q. But it had a creamy tint? A. Slightly so.

Q. Slightly so? A. An expert could detect it.

Q. Now, after you were bleaching the same flour what color would it be? A. White.

Q. It would lose its creamy tint?

A. A part of it, yes, sir.

Q. All of it?

A. I don't think it did. It would depend on how much we bleach it—to what extent.

Q. Well, as you ordinarily bleached it for your trade?

A. We intended—the miller had a standard to go by, and we intended to mill to that standard in regard to color and to bleach in proportion.

Q. And it did have a white color, didn't it, after it was bleached? A. Yes, sir.

Q. And was it a different color from the same flour before it was bleached? A. Different from the same flour?

Q. Yes. A. Oh, yes, it was whiter.

730 Q. It was whiter? A. Yes, sir.

Q. You could tell the difference between the bleached and the unbleached patent flour, couldn't you?

A. Of the same per cent?

Q. Well, of the same flour? A. Yes, sir.

Q. Now, when you were making that sixty per cent patent flour, what other grades of flour were you making?

A. We were making baker's grade.

Q. What per cent?

A. Sixty per cent of patent to thirty eight per cent of baker's flour and two per cent of low grade.

Q. Two per cent of low grade.

A. Yes. We just took off enough to clear up the baker's flour.

Q. So you were making a sixty per cent patent and thirty eight per cent of—what did you call that?

A. Baker's? We called it baker's.

Q. Is that what is ordinarily called a clear flour?

A. That is what they have been calling a clear flour here, yes, sir.

Q. Now, was there a difference in color between that baker's flour, and the patent flour, as you manufactured it, there, before you bleached it? A. Yes, sir.

Q. A distinct difference?

A. Yes, sir, when you took the two together.

Q. You could tell it? A. Yes, sir.

Q. Anybody could tell it? A. Yes, sir.

Q. And did you bleach this clear? A. Yes, sir.

Q. Did you bleach the patent? A. Yes, sir.

Q. Did you bleach all of it?

A. Didn't bleach the low grade.

Q. Didn't bleach the low grade? Now, you bleached it all? A. Yes.

Q. And did you bleach them all at the same time when you were milling them? A. Yes.

Q. From the different streams? Then how did you adjust your machinery so as to get a larger per cent?

A. I don't understand what you are getting at.

731 Q. You took out sixty per cent in the first place?

A. Yes, before we bleached it.

Q. And thirty eight per cent baker's?

A. That was before we bleached it.

Q. Now, you had your machine set so it would divide your grades in those proportions, did you not?

A. At that time.

Q. Now, what did you do to change the proportion that you received from that same flour?

A. We took streams of flour that we had going into the baker's before we bleached it, and turned them into patent, after we bleached it—that is, after we begun bleaching we took these streams of flour that formerly went into the baker's—and turned them into the patent flour.

Q. But you bleached it all—patent, and baker's, did you not? A. Yes, sir.

Q. And made simply the one grade out of eighty per cent of the wheat?

A. Oh, we made two grades then.

Q. Yes, but that, you called patent?

A. Yes, eighty to ninety per cent patent.

Q. Now, did that flour have a different color from that sixty per cent patent? A. Unbleached?

Q. Yes. A. Yes, sir.

Q. Distinct difference in color? A. Yes, sir.

Q. You could tell the difference?

A. Yes, sir, unbleached.

Q. And you are a flour dealer? A. Yes, sir.

Q. Nobody could fool you that way, could they?

A. Between sixty per cent and eighty per cent?

Q. Yes. A. I don't think they could.

Q. You could tell the difference? A. Yes, sir.

Q. And how did you brand it?

A. Branded it patent.

Q. Before you bleached it and after you bleached it?

A. Yes, sir. Didn't change the brand on our sacks.

Q. What did you brand your second grade, or baker's?

A. We branded that baker's.

Q. Did you use the word "Patent"?

A. I think so, then, but afterwards it was discontinued.

732 Q. But you did brand that baker's flour, patent flour, didn't you?

A. Yes, a long while ago. We quit that, though.

Q. Well, you haven't been in the milling business for three years? Did they brand it with the word "Patent" before you left?

A. No, sir. I quit branding it,—left it off the sacks.

Q. Off of the sacks.

A. Yes. On the high grade, we still kept the word "Patent". I think we used "High Patent."

Q. You didn't intend to brand anything "Patent" that wasn't patent, did you? You were conducting a square, legitimate business, weren't you?

A. I branded our best grade of flour "Patent".

Q. And you thought it was patent, didn't you?

A. Well, it was patent so far as the quality compared with what other mills were putting out. Branded the same way. My opinion of patent flour and what we put out in the trade as patent flour, is a different proposition.

Q. But you called it a patent?

A. We called it a patent, yes, sir.

Q. And you thought it compared with what other people were putting upon the market as patent flours?

A. I knew it did.

Q. You knew it did? A. Yes, sir.

Q. You know that some patent flours with even higher percentages are still called patent, don't you?

A. No, sir.

Q. You tried to make it just as high as anybody and called it "Patent"? A. Yes, sir.

Q. Now, you said you put out some bleached flour that was rejected? Is that right? A. Yes, sir.

Q. How much of it?

A. I think, in that lot, there was about ten or twelve sacks.

Q. About ten or twelve sacks?

A. Yes, that time.

Q. And you say that looked like sulphur?

A. No, I said that—

Q. (interrupting) Wasn't that what you told Mr. Butler, that that flour looked like sulphur? A. No, sir.

Q. I must have misunderstood you then.

A. You certainly did.

733 Q. What did you say?

A. I said that it had some spots in it that were yellow.

Q. Only had spots in it? A. Yes, sir.

Q. What part of it was yellow?

A. Perhaps there was a deposit of one ounce in that, in spots, that was yellow. I examined the whole sack after it came back.

Q. Now, that flour wouldn't go on the market?

A. No, sir.

Q. And you would not buy that kind of flour?

A. No, sir, and I wouldn't put it out.

Q. You wouldn't be fooled by that grade of flour, would you? A. Certainly not.

Q. You would reject it? A. Certainly.

Q. And if you were a miller, and found such flours that had gotten into the trade, you would immediately replace it with good flour, wouldn't you? A. Did do it.

Q. It was the result of an accident, wasn't it?

A. No, sir.

Q. Was it intentional on your part that that got out?

A. No, sir.

Q. How did it get out, then?

A. It got out by reason of this accumulation of this flour, that we found by investigation, afterwards, that accumulated in the conveyor where we bleached the flour? •

Q. But you didn't intend to put that flour on the trade, did you? A. No, sir.

Q. And immediately furnished other flour? A. Yes, sir.

Q. Now, it was due to the fact that you did not properly clean out the mill, wasn't it, that that flour got into that sack?

A. I don't think so.

Q. Don't think so?

A. Because we kept our mill thoroughly cleaned.

Q. Did you ever have this experience any other time?

A. No, sir.

Q. And how long a time, you say, you were there—three years? A. About five years.

Q. Five years? A. Yes, sir.

734 Q. And you had one shipment in which there was complaint about this yellow flour?

A. That is the only one I remember of.

Q. Now, you weren't manufacturing that kind of flour, generally, were you? A. What kind of flour is that?

Q. This yellow flour, and putting it upon the trade?

A. Not intentionally.

Q. Well, you didn't do it, because it didn't come back?

A. It didn't come back. We had no complaint.

Q. That was the only shipment?

A. That was the only shipment.

Q. And you say it was the only complaint?

A. That is, the only complaint, I said, that I remember of in regard to that particular fault.

Q. Now, it is a fact, is it not, that more or less of dirt of various kinds will accumulate in a mill, during its operation?

A. Yes, sir.

Q. And there will be particles of flour scattered about in different parts of the mill, or will accumulate dirt and filth, and be unsalable, if put upon the market, won't there?

A. Oh, we kept the mill clean.

Q. Well, I will ask you, if that isn't true, generally, in the milling industry?

A. We didn't take the flour out of the corners of the mill and put it on the market, no.

Q. You wouldn't take this colored flour that had collected in some part of your machinery and put it on the market?

A. No, sir.

Q. And if you kept your mill properly cleansed, it would not be there, would it?

A. It was not there after we discovered what it was caused it.

Q. You cleaned it, after that? A. Yes, sir.

Q. Then the fact that it was there was due to not cleaning before, wasn't it?

A. We didn't know it would accumulate there, before we discovered it. If we had known it would accumulate there, we certainly would have cleaned it out.

Q. Now, do you know of any standard that is recognized by the government or by any state, or by any official

735 body, anywhere, as to what is a patent flour, and what is not a patent flour? A. No, I don't.

Q. How is that? There is no standard is there?

A. I know of no official standard.

Q. Practically every miller has his own standard, doesn't he? A. No, I don't think that.

Q. How is that? What standard do they have, then?

A. I think there was an attempt made by the Kansas millers to make a standard for patent at one time.

Q. They didn't succeed with it, did they?

A. Yes, they did, for a while. They put out a sixty or sixty five per cent patent, and put a stamp on their sack, indicating that that flour didn't contain over sixty or sixty five per cent. I don't know whether that is discontinued, or not.

Q. You don't know whether that is in effect, today, or whether it ever got into effect with all the mills?

A. In buying flour, it was my understanding, when I bought flour of that particular brand on, or number, that it was sixty or sixty five per cent.

Q. Well, you had that understanding? A. Yes.

Q. But you don't know of any government test, or any state test or any test that could be used as a standard that all millers could observe in making patent flour, do you?

A. No, sir.

Q. Never has been such, in the milling business, has there?

A. I don't know of any.

Q. What experiments have you made, as a dealer in flour, to determine whether flour is bleached or unbleached? Can you always tell when it comes to your market? A. No.

Q. You can't tell?

A. No. Not by looking at the flour, unless I know that one sample is bleached, and the other sample unbleached.

Q. And you can't tell whether it is improved or unimproved, can you?

A. I could, by baking it out, I presume, or I can by examining the flour.

Q. Well, you have never conducted any baking tests, have you? A. Not since I have been buying flour, no.

736 Q. And did you when you were milling?

A. Yes, sir.

Q. For what purpose? To test the quality of the grain you were grinding? A. No, sir.

Q. How?

A. No, sir. After I put the bleaching in, I made some baking tests, in my house, of biscuits, comparing the color between the flour that I made, without bleaching it, and as I increased the per cent of patent.

Q. And you say there was very little difference?

A. Very little difference.

Q. But you stated there was quite a little difference in the flour which you could distinguish in color, between the bleached and the unbleached? A. Yes, sir.

Q. But you couldn't tell that difference, in the biscuits?

A. In the baking?

Q. After they were baked—in the biscuits.

A. Take the two together, I could see a slight difference. Take one at one time, and one at another, I could not tell the difference.

Q. So the difference was there?

A. A very slight difference.

Q. You could tell which was the bleached flour biscuits and which was the unbleached flour biscuits?

A. I couldn't tell unless I looked at them together.

Q. Now, could you tell, from anything about that, either color, taste, smelling, or acceptability, or anything else?

A. No, I was only testing as to color.

Q. And you say you could tell the difference, by comparing the two together? A. Yes, a slight difference.

Q. Now, you spoke something about pipes. What kind of a pipe did you use to connect your machine?

A. To convey the gas from the generators to the jars?

Q. Yes. A. Used a rubber hose.

Q. What was the size of that rubber hose?

A. An inch and a half.

Q. An inch and a half? A. Yes, sir.

737 Q. And you used it how long?

A. About five or six weeks.

Q. Five or six weeks? A. Yes.

Q. And did you use anything else besides this rubber hose?

A. No, sir. I had to renew it every five or six weeks. I bought hose in quantities and kept it for that purpose.

Q. It would get dirty, wouldn't it? A. No, sir.

Q. Nothing in there at all? Now, what other conveyance did you have besides this hose? Did you have any iron pipes, anywhere?

A. The only iron pipe I had was, taking the air from the outside to the fan. I blew the air into the jar containing the nitric acid.

Q. Did you have an agitator? A. I had a conveyer.

Q. Well, did you have an agitator, of any kind, to mix up and bleach the flour? A. We used the conveyer.

Q. You didn't have an agitator, at all?

A. We used a conveyer for an agitator.

Q. What is a conveyer? Explain that to the jury.

A. That is a spiral, iron shaft, in the box that conveys the flour from one point to another, and mixes it up as it conveys it.

Q. Did that convey it direct to the packing room?

A. Direct to the spout leading to the packing bin, yes, sir.

Q. So that you didn't dilute this gas with any intermediate box, such as a tank? A. No.

Q. Or didn't even use an agitator?

A. Used a conveyer for an agitator, which has the same effect.

Q. Well, you didn't use an agitator, such as you have heard described here?

- A. No. We didn't have any such thing specially built.
- Q. Didn't have such a thing in the mill at all?
- A. No, We just used the conveyer.
- Q. You were not the miller, but the manager of that mill?
- A. I was not the head miller, no.
- Q. So far as you know, the mill is still using this, isn't it?
- A. So far as I know, the bleacher is still there.
- Q. You haven't any interest or connection with the mill? A. No, sir.
- Q. Haven't had for three years? A. No, sir.
- Q. Never had put the one complaint that you can now recall?
- A. One complaint in regard to the flour containing this deposit of yellow?
- Q. Yes? That is all?
- A. That is all, because, after that, we kept it clean.

Redirect Examination

By Mr. Butler:

Q. Did yellow flour accumulate around your mill, at all, in these spouts, before this bleaching? A. No, sir.

Q. But, after your bleaching, and your discovery of it, you cleaned it out?

A. Cleaned it out, and kept it cleaned out—cleaned out every week.

Q. Now, how yellow would it turn in a week? That is what I am trying to get at.

A. Oh, about as yellow as sulphur.

Q. And this was not dirt that was floating about around the mill? This was flour that was on its way to the packing room? A. That was flour.

Q. You told Mr. Helm that, by ordinary observation, and without a standard of comparison, you cannot tell whether flour is bleached or not. A. I could not, no, sir.

Q. Do you know of any one who can?

A. No, I do not.

Q. You are, now, a broker in flour? A. Yes, sir.

Q. When did this association of millers, in Kansas, who established the sixty five per cent patent, start?

Mr. Scarritt: I object to that as immaterial.

Mr. Butler: Well, it was called out in cross-examination.

Mr. Scarritt: No. It was not in answer to any question.

Mr. Butler: Yes, Judge Helm asked him.

Mr. Helm: I simply asked him if there was any official standard.

Mr. Butler: I know, and then you got too long.

Mr. Smith: It would not be binding on this defendant.

739 Mr. Butler: No, but I wanted to find out what they were talking about. Does your Honor sustain the objection?

The Court: No, I did not.

A. It is my understanding, about three years ago.

By Mr. Butler:

Q. And some of the bags were branded to indicate it?

A. Yes, sir. My understanding was that they put a cash guarantee that it was so much.

Q. That is, in the turkey hard wheat territory?

A. Yes, sir.

Q. Now, in cross-examination, you were interrogated somewhat closely as to the percentage you put in your patent before and after you commenced to bleach, and, as I caught your answers, it was stated that, after you commenced to bleach, you had about eighty five to ninety five per cent—whatever it was—and, you say that corresponded with the percentage of patents put out by other millers?

A. Yes, as I understood it. Those who were bleaching.

Q. Who were bleaching? A. Yes, sir.

Q. Now, before you commenced to bleach, did your patent, then of sixty five per cent correspond with the patents put out by the other millers, who were not bleaching?

A. We were able to hold our trade did hold it. But we couldn't make our per cent any higher than that, on the patent, and hold it.

Q. And compete with the other flour? A. No.

Q. So then, the situation is, before bleaching, your patent corresponded—

Mr. Scarritt: (interrupting) I object to his arguing this over again, if our Honor please.

Mr. Butler: I will withdraw the question, Judge Scarritt, if you are going to get up. I am going to stop you from making these speeches, if I have to withdraw every question.

Mr. Scarritt: You will not have to withdraw many. If you keep in line, I will.

Mr. Butler: All right.

The Court: Are you through?

Mr. Helm: I want to ask another question that was brought out by the redirect, of Mr. Butler:

740 Q. You say it took a week to accumulate this yellow flour you speak of? Is that right?

A. I said we cleaned out the conveyer every week, after that.

Q. I know, but he asked you how long it would be before that would accumulate there. I understood you to say about a week.

A. Of course, every time we cleaned it out, we found some of that yellow flour, that had accumulated there.

Q. Now, how long had you been running your mill before you had this complaint? A. You mean from bleaching?

Q. Yes, from the time you started in.

A. About five or six weeks.

Q. And it was before you learned how to handle the process?

A. Before we learned what effect the bleaching process would have on the flour that remained in the conveyer.

Q. Did you have any means of regulating and gauging the amount of this gas that you would blow upon that flour?

A. Yes.

Q. And do you know whether or not that was not produced by that entirely—the gas, itself, blowing in there?

A. Know that it was not?

Q. Yes.

A. Oh, yes. I know that would be impossible, the way we had it arranged.

Q. Would be impossible? A. Yes.

Q. Well, it was only about eighteen inches from the generator, wasn't it, to your conveyer?

A. Oh, no. About twenty-five feet, I should think.

Q. You didn't have the flour separated from this generator several feet—twenty-five to a hundred feet, as some of these millers have testified, from the place of the generator, but had it only eighteen inches, as I understand, from the generator to the flour. A. Oh, no.

Q. What was the length of your hose?

A. About twenty-five feet.

Q. It went into the conveyer? A. Yes, sir.

Q. And the flour was run through there?

A. Yes, was in the conveyer—about twenty-five feet.

741 Q. Describe a little more particularly where this flour that was over-bleached and turned to a sulphur color, was accumulated in your mill.

A. Between the end of the conveyer and the conveyer box, there was probably a two-inch space in there and it would accumulate in there and also in the top corners of the box. It would stick to the sides, somewhat.

Witness excused.

A. C. Leflang, recalled, was examined further, and testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Leflang, what is the name of the agitator that you used to bleach this flour, and that you have been examined about, here?

A. I think it is the Mitchell agitator. It is the same one that has been designated by that name before the court.

Q. The same one that has been designated by that name, before the court? A. The same one. The horizontal machine.

Witness excused.

Denison, being recalled, testified further as follows;

Direct Examination

By Mr. Butler:

Q. I intended to ask you this morning, but I overlooked it, about this accumulation of flour, that is bleached yellow, about the mill. What kind of an agitator did you have?

A. I had a Mitchell. Came with the Alsop. Every-
742 thing came from the Alsop people.

Q. The whole outfit? Now describe to the jury where, in just such an agitator--this Mitchell--the same as Mr. Leflang referred to--this flour is liable to accumulate, and turn sulphur colored by this bleaching?

A. It accumulated, on the outside jacket. That is, on the inside of the outside galvanized iron jacket. There was about eighteen inches space between the beaters and the jacket, and between the beaters and the jacket, that would accumulate on there.

Q. Will this beaker fairly well represent the shape of the Mitchell agitator? A. Yes, sir.

Q. And it is metallic galvanized iron?

A. Yes, sir, the outside case.

Q. And there are some beaters? A. Revolving.

Q. Set in the center and whirling around like fans?

A. Yes, sir.

Q. And there is a space on the outer edge of the beaters, between them and the inner sides? A. Yes, sir.

Q. Now, where was it the flour accumulated?

A. The same as the glass would be, there.

Q. Just the same as a frosting on the inside of the glass?

A. Yes, sir.

Q. What was the clear space there? How close to the inside of the agitator did the beaters come? A. About an inch.

Q. About an inch? A. Something like that.

Q. Now, what did you observe with respect to the flour accumulating there, and becoming yellow?

A. It would become yellow about like sulphur.

Q. Now, the bottom of this thing is funnel shaped—the bottom of the agitator? A. No, it isn't funnel shaped.

Q. Well, how is it? Is it flat?

A. It lays horizontal and the outside spout was about an inch and a half or two inches from the tail end, as you call it, and of course, the flour would accumulate there, on the jacket. We would probably clean off a half a bushel or something of that kind.

Q. About a half a bushel?

743 A. Yes, sir. And then, on the end, there, too, there might be a pint or such a matter. Of course, I never measured it.

Q. About how often did you clean it off?

A. We cleaned it off twice before we got to fix it. I fixed it, then, so it couldn't accumulate there. I put a brush at intervals on these beaters, so it would sweep the jacket, and keep that perfectly clean.

Q. That is a contrivance you invented, to keep it sweeping?

A. Yes, sir.

Q. Now, what I am trying to get at, independent of that, is, how frequently would this yellow coat, or yellow accumulated flour, on the inside of that thing, accumulate?

A. Well, I don't know just how long it did take. It was there every time we cleaned it out. It probably ran that way two months, or such a matter, and then I noticed it.

Q. Did you taste or smell of this flour, after it had turned yellow? A. No, sir, I did not taste it.

Q. Did you smell of it? A. Yes, sir.

Q. How did it smell? A. It had a peculiar smell.

Q. And with regard to the smell, give us some idea of that.

A. I was reminded a great deal of when you are in a tin-smith's shop, when they are soldering, using acids.

Q. When they are what? A. When they are soldering.

Q. Was it a pleasant odor, or— A (interrupting) No, disagreeable.

Cross-Examination

By Mr. Helm:

Q. Mr. Denison, you say some people use the Mitchell agitator? A. Yes, sir.

Q. And that is round, is it? A. Yes, sir.

Q. And, instead of being vertical, it is in a horizontal position? A. Yes, sir.

Q. Do you have it on an angle, or horizontal?

A. It is level.

Q. The flour goes in at one end of that? A. Yes, sir.

744 Q. And it is worked down, by these beaters, to the other end? A. Yes, sir.

Q. And goes out into a conveyer below?

A. Yes, sir. Doesn't go into any conveyer below. It drops into the elevator.

Q. You say this is made out of galvanized iron?

A. Yes, sir.

Q. And I believe you have described that so the jury will understand that. I will not ask you anything about that, but the flour accumulated on the sides of this agitator?

A. Yes, sir.

Q. And at a point right below the opening where the flour went in?

A. Yes. There was about an inch and a half or two inches space, there, where it pushed by.

Q. Now, flour will accumulate in angles, in different parts of the mill, will it not, where there is obstruction to its free passage? A. Oh, yes.

Q. And it will remain there, will it not, in some quantities, in different parts of your mill? A. Yes.

Q. Will that flour remain pure and wholesome, whether it is bleached or unbleached? A. No, sir.

Q. It is not flour that you would put upon the market, at all, is it?

A. Why, no. Of course, it does get in, occasionally.

Q. It does get in occasionally?

A. Yes, sir. That is unavoidable.

Q. And with the best care you can take, you will have it?

A. With the best care any one can take.

Q. And yet it doesn't get into your commercial flour, does it?

A. Yes, sir. Whenever you have enough jar, to jar that loose on the spout, it will go in. That is the way we discovered it.

Q. How long had you been operating your bleacher before you discovered that?

A. A month or two. I couldn't say exactly as to that.

Q. How long did you use your bleacher? A. A year.

Q. And you had no trouble afterwards?

A. No, sir, not with that. Of course, in the spouts below that, we did. Still continued.

Q. But you were not manufacturing for sale this yellow flour were you? A. Well, I guess not.

745 Q. This sulphur flour?

A. No, sir, we didn't want to. That is why I put the brushes in there. I didn't want to take any chances.

Q. You could not put it upon the market and fool anybody with it, if you wanted to, could you?

- A. I don't know, if they would not notice it.
 Q. If it was a yellow flour, they would notice it?
 A. Why, people don't look at flour—
 Q. You noticed it at the mill?
 A. No, not any more than cleaning that out.
 Q. You never found it in the flour, in the sacks?
 A. No, sir.
 Q. Never did? A. No, sir.
 Q. So, you never sold, or put any of this yellow flour onto any good housewife? A. I don't know.
 Q. You never heard of it?
 A. No, sir. We never had any trouble.
 Q. Never had any trouble of that kind? A. No, sir.
 Q. So that the use of this bleacher wasn't destroying the reputation of your flour, on that account, was it?
 A. No, sir, it didn't, at least.
 Q. Did not at all? A. No, sir.
 Mr. Helm: That is all.

Redirect Examination

By Mr. Butler:

- Q. You could not tell how long a particle of it might be enclosed, and then drop off, and go on its way to the market?
 A. No, sir, I couldn't tell anything about that. That is why I put the brushes in. I didn't want to take any chances.
 Q. And the quantities would be relatively small, in a sack of flour, of yellow flour? A. Yes, sir.
 Q. You might get only a handful?

Mr. Helm: He didn't say that.

By Mr. Butler:

- 746 Q. Well, it might fall off, from time to time?
 A. Yes, sir.
 Q. Now, it was not for fear of fooling people, by selling them sulphur colored flour, that you stopped its use?
 A. No, sir.
 Q. Now, Judge Helm made quite a point that there was no danger of fooling them that way. But, suppose that flour was poisoned by this process of bleaching, and that, when it turned sulphur colored, it was poisoned by this [santhro prodeid] action, or something of that sort, would you have enough of it, in those places around there, to affect the quality of a loaf of bread, we will say, if you got it in the bread.

Mr. Helm: We object to that as incompetent, irrelevant and immaterial, for the reason this witness is not an expert.

The Court: Sustained.

Mr. Scarritt: There is no use talking about it, it is already in.

The Court: The objection is sustained. I don't know what you gentlemen are saying. You may talk me out of it.

Witness Excused.

F. H. Krite, called as a witness on behalf of the Government, being first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Butler:

- Q. You may state your name and residence.
A. F. H. Krite, St. Louis, Missouri.
Q. Mr. Krite, what is your age?
A. Well, I will be 72 in a couple of months.
Q. Are you a miller?
A. Well, I have been in the milling business for the last forty years; before the roller process went in I done
747 some grinding, but not since.
Q. Are you connected with the milling business?
A. I am Secretary of the milling company.
Q. And do you spend your time about the mill?
A. I do.
Q. Where is your mill?
A. East St. Louis, Illinois, right opposite St. Louis.
Q. And have you continued to be connected with the business, otherwise than as a practical milling man—a manager, or about the mill all the time?
A. Well, I generally look after everything. If there is anything wrong, they generally call me.
Q. Now, what is the name of your company?
A. Hezel Milling Company.
Q. How about the capacity? A. 500.
Q. Twenty four hours? A. Yes, sir.
Q. Did your mill ever bleach its flour? A. Yes, sir.
Q. What process? A. Alsop process.
Q. How long did it bleach by the Alsop process?
A. We started in the beginning of 1904 and kept on part
of the time up to February 15th, 1909.
Q. For about five years? A. No.
Q. 1904? A. 1904 up to 1909, February 15th.

The Court: That is nearly five years.

The Witness: Nearly five years.

By Mr. Butler:

- Q. Between four and five? A. Between four and five.
Q. You became familiar with the bleacher? A. I did.

Q. And did you observe whether or not there was any odor to it? A. Yes, sir, there was an odor about it.

Q. Can you describe it? A. Well, it is a gasy smell.

Q. How is that?

A. It is a smell something like some kind of gas. I can't describe exactly the smell.

Q. How far was your gas generator from your agitator?

A. About 90 feet.

Q. About 90 feet away? A. Yes, sir.

748 Q. Did you have a tank, or some tanks, between the gas maker and the flour shaker?

A. We started first without a tank.

Q. Yes.

A. But we had some trouble with it, and I called Mr. Mitchell over, and he, himself, did not seem to know what to do, so he concluded that a tank would be of assistance, so we put a tank there, a tank about six feet wide, and about three feet in diameter.

Q. Is that the Mr. Mitchell who is here in the court room?

A. Yes, sir.

Q. The manager of the Alsop process?

A. Yes, sir, manager of the Alsop process.

Q. When was it you tried to improve it by a tank?

A. What was the question?

Q. When did you put in this tank arrangement?

A. That was some time afterwards? I can't tell you the date.

Q. Do you know how long the plant had been in, without it?

A. I suppose it was nearly six or eight months.

Q. Six or eight months?

A. Something in that neighborhood.

Q. Now, do you know what kind of a pipe you had to carry the gas mixed with air from your gas maker to your flour agitator? A. Yes, sir.

Q. What was it? A. Steam pipe.

Q. An ordinary steam pipe? A. Iron steam pipe.

Q. Made of iron? What kind of tank was put in?

A. Galvanized iron.

Q. Do you know its thickness?

A. No, I don't know the exact number of the iron. It was pretty heavy.

Q. Have you any of the iron pipe that was used to conduct this air, modified by the flaming arc, to the flour?

A. Yes, sir; one of your inspectors was there at the mill and he carried the pipe away.

Q. And is the pipe here, now?

A. Yes, sir, I believe so.

(Iron pipe referred to produced and exhibited to the witness.)

749 (Exhibit referred to is here marked by the reporter as Exhibit No. 14.)

Q. Can you tell whether the piece of pipe that is marked by a tag attached thereto, Exhibit 14, was one of the pipes which was used to conduct modified air to the flour?

A. This is the pipe.

Q. Now, can you tell the Court and jury how long that pipe is? First, whereabouts was that pipe—was it nearer to to gas maker or the flour shaker?

A. No, sir, it was right over the agitator.

Q. Well, that is the same thing?

A. No, sir. The shaker is the machine that goes that way (indicating).

The Court: Is that the agitator?

A. No, sir.

The Court: Where is the shaker, as distinguished from the agitator?

A. Well, we have no shaker. We have no shakers.

By Mr. Butler (referring to Exhibit 14).

Q. What are these holes? What are these holes on the pipe? There is a row of holes on the pipe. What are they?

A. On each of them we put a small pipe, and that led into the agitator, so that the flour would get more air.

Q. This pipe laid right on top of the agitator?

A. Yes, sir.

Q. And was it connected down, by a little pipe in each of these little holes, leading into the agitator?

A. It was over the top of the agitator, and the gas went right down into it.

Q. The holes are about six inches apart on it?

A. Yes, sir.

Q. And extend over a length of pipe about five feet long?

A. About eight feet, I think.

Q. A row of holes on it? A. Yes, sir.

Q. And the length of the whole pipe is about eight feet long? A. Yes, sir.

Q. Maybe a little longer?

A. Maybe a little longer.

750 Q. Now, were there screws on the end of this pipe?

A. There were.

Q. Both ends? A. No, sir.

Q. Which end?

- A. Only on this end, there was a pipe connection.
- Q. On this end there was a pipe, the screws made in the ordinary way?
- A. No, sir, just a—
- Q. (interrupting) I mean, threads?
- A. Oh, it was threaded.
- Q. That is what I meant. And these little, small pipes conducted the air or gas into the agitator—do they have screws on them?
- A. No, only when they are connected.
- Q. That is what I mean. They were screwed in? A. Yes.
- Q. Screwed on one end that went in?
- A. Yes, sir.
- Q. Now, you observe, there, a crack or slit in this pipe, and that extends from one hole to the nearest one, in each direction, making a distance of about a foot, isn't it?
- A. Yes, sir.
- Q. How did that come in there?
- A. I don't know. It was perfect when it was put up.
- Q. And how long was that pipe in use, before it got into that shape?
- A. About one year, in daytime.
- Q. About one year in daytime?
- A. We didn't run at night, that year.
- Q. Now, was that the first year or the second year?
- A. Second year.
- Q. Where was the pipe that was first in—the same kind of pipe?
- A. It was a little different. They corroded so bad, they were thrown in the scrap pile.
- Q. How long were the pipes in, that were corroded so you threw them into the scrap pile? How long did they last?
- A. They lasted about that length of time?
- Q. About a year? A. Yes, sir.
- Q. How many pipes did you have at this place, here, by the agitator, during the four or five years you had the process?
- A. Well, I can't say positively about that, because we didn't keep no account of that.
- 751 Q. Can you give us pretty near the number?
- A. The average life of them would not be, if we ran night and day, more than six months.
- Q. The average life of a pipe like that?
- A. Without eating holes in them somewhere, so we can't use them.
- Q. Now, have you any of the other iron fastenings that the modified air could get at?

Mr. Scarritt: Now, what was this pipe, here, to be used for? We object to this witness, or anybody, saying anything

about this pipe, because there is nothing here to identify this pipe, or show how long it has been out of the machine. I thought you were going to tell us about it. We have been listening for that, and you have told us how many holes there are in it, and all that, but you have not told us where it came from.

By Mr. Butler:

Q. When did you turn this over to the inspector for the Government?

Mr. Scarritt: Just a moment. So far as the testimony goes, your Honor, I object to the pipe being marked as an exhibit, or introduced in evidence, because, as I understood the witness, it has been out of this machine, for possibly a year, if I understood rightly.

The Witness: Yes, sir.

Mr. Scarritt: Laying around in some scrap pile, somewhere.

The Witness: No, sir; it was standing up right in the mill.

Mr. Scarritt: In the mill?

The Witness: Yes.

Mr. Scarritt: Standing up in the mill, not being used for a year. Now, that kind of testimony ought not to be introduced before a jury, to show what effect anything had on an iron pipe standing up in a mill, or anywhere else, for a year, because it is too remote.

The Court: Well, I had a case quite closely akin to this, which was the case of some company against the Savoy Hotel Company in Des Moines, that I tried a little over a
752 year ago, and it was passed on by the Court of Appeals for that circuit, in the last few months, in which it was claimed that certain action would bring about certain results with a pipe about the size of that. The Court of Appeals held it was proper. You will find that case, I suppose, in the Federal Reporter; I am not certain about that. It was in the advance sheets. The Court of Appeals for this circuit, within the last few months, held it was proper. The objection is overruled.

By Mr. Butler:

Q. Mr. Krite, after you took this pipe, Exhibit 14, out of place, out of use, where did you keep it until you turned it over to the inspector?

A. We just stood it up inside the mill.

Q. Where it was used?

A. Close to the agitator; never carried it downstairs, because it stood right straight up.

Q. And when was it, do you remember, that you turned it over to the inspector?

A. It was sometime in the beginning of this year, when he came to visit the mill. He saw the pipe there, and wanted it.

Q. Now, have you any other irons that came in contact with the air modified by the Alsop process? A. Yes, sir.

Q. Is that one that is in your hand?

A. Yes, sir, this is one of them.

(The iron referred to was here marked Exhibit No. 15).

Mr. Scarritt: We made the same objection to this; that has been out of use a year, I suppose, too?

The Witness: No, sir.

Mr. Scarritt: How long?

The Witness: Only since the inspector took it.

Mr. Scarritt: How long?

The Witness: Beginning of this year.

Mr. Scarritt: I object to that for the same reason, if your Honor please.

The Court: Same ruling.

753 Mr. Scarritt: Plaintiff excepts.

By Mr. Butler:

Q. How long was this exhibit of iron or metal in use in the mill? A. That iron valve was used from the beginning.

Q. And where was that used?

A. From the tank to the agitator.

Q. From the tank to the agitator? Well, was it nearest to the tank?

A. Yes, only a small difference, of course, in that.

Q. Now, the iron valve, you say, was in use all of the time that the Apsop process was in use? A. Yes, sir.

Q. Now, is this valve—

Mr. Scarritt: (interrupting) How long was that?

Mr. Butler: I am going to come to that. About four years and a half.

Q. Now, there is screwed into this valve a piece of pipe about two inches long? A. Yes, sir.

Q. Screwed in by means of threads? A. Yes, sir.

Q. How long was that piece, two inches long, in place in that valve?

A. Well, when we run steady, we had to renew them about every four to six months.

Q. And this particular piece was the last one?

A. Yes, sir.

Q. Now, after you quit bleaching, did you take this thing apart, or did it remain in place?

A. It remained in place until the inspectors came there and looked at it.

Q. That is about the first of this present year?

A. About the first part of the year, the first month.

Q. You quit in February, 1909? A. Yes, sir.

Q. And that was taken out of there twelve months after you quit bleaching? A. Yes, sir.

Q. And, in the meantime, it remained in the mill?

A. Yes, sir. We never changed the position of the agitator, or any part of the machinery. We just stopped it.

Q. Do you know what kind of metal this heavy piece is?

A. That is cast iron.

754 Q. And what kind of metal that is—the two inch pipe?

A. Wrought iron.

Q. And there is some brass, I take it, up here?

A. Yes, sir.

Q. I don't know what part of the valve you call it; do you have a name for it?

A. Well, that is the upper part of the valve—the outside.

Q. The stem, or something like that? Now, on the other end of this valve, which is marked 15, there is another pipe screwed in. Do you observe that?

A. There is no pipe screwed in there.

Q. When that was in position, was there a pipe screwed in there? A. Yes, sir.

Q. Was there threads on that end?

A. Yes, sir. The threads in them valves, like other valves, extend in about half an inch, but, if I am not mistaken, there is only about two threads on that, left.

Q. Now, this valve would have to be opened, to let the gas pass through? A. Yes, sir.

Q. It is now in the open position, isn't it?

A. Now, it is in the open position.

Q. Now, speaking of the valve at the place of its largest circumference, I would like to have you examine, by looking and feeling the present thickness of it, where I place my fingers, at the largest circumference, and tell us whether or not there is any change in its present thickness, as compared with what it was when it was put into use?

Mr. Helm: We object to that as incompetent, irrelevant and immaterial, the witness not having shown himself qualified.

By Mr. Butler:

A. Well, if you know.

Mr. Helm: He has not said he knows what it was when it was put in.

By Mr. Butler:

Q. If you know, tell us, Mr. Krite, and if you don't, just say so.

A. Well, there ain't much in this, except the rust, what this gas has eat away. There is not much on that one, excepting here, on the threads.

755 Q. Now, there is another valve, marked 15. Was that valve in use, along the modified air line, from the gas maker to the agitator? A. Yes, sir.

Q. Where was that one?

A. Let me see it, please. (Examining the exhibit.) That was on the tank.

Q. Which end?

A. Where the gas came out through the agitator.

Q. I thought you said 15 was at the end next to the agitator. A. They are both there.

Q. There are two of them, there, are there? A. Yes, sir.

Q. Two pipes? A. Yes, sir.

Q. Running to different agitators? A. Three pipes.

Q. Each one running to a different agitator?

A. Yes, sir.

Q. Now, is there any hole, in the cast iron part of that valve? A. There is.

Q. Whereabouts is it? A. Right there (indicating).

Q. And how about the thickness of that one?

A. Well, where that hole is, the gas has ate it away.

Q. How about the threads on the end, where it connected up with the pipe?

A. Well, in that one there is only one thread left.

Q. On both ends, or on one end?

A. No, on the other end there is two and part of three.

Q. Was there, originally more than two on one end, and one on the other?

A. Well, that extended in about five-eighths of an inch—the threads—five-eighths, maybe three-quarters, by close measurement.

Q. Exhibit 17 is called to the witness' attention. Is that a piece of pipe that was used in that air line from the gas generator to the agitator?

A. Yes, sir, that was one of the pipes.

Q. Whereabouts was that?

A. That is one of the valves, similar to the other one. This is used the same as the other.

Q. That is, Exhibit 17 performed the same office as the pipe about two inches long, which is in Exhibit 15. It is flattened some. It is not round any more. How did that happen, do you know?

756 A. That happened by taking it out.

Q. Do you know how long that was in?

A. Well, I guess that may have been in from four to six months. That was about the length of time that we could keep them in.

The Court: I will say to the jury at this time that all exhibits which are admitted in evidence will be in the room where you deliberate upon your verdict, at the close of the case so if you do not inspect them now, later on you will. Of course I mean such exhibits as may be admitted by the Court in evidence.

By Mr. Butler:

Q. Did you notice whether or not, when you took out these pipes that had been in use in this air line from the gas maker to the shaker, whether there was any accumulation inside of them?

A. A lot of rust in them.

Q. Now, describe the quantity and appearance of that.

A. Well, as I haven't taken down the whole line of the pipe, I can't exactly give you the quantity of rust there was in it, but what I took down, I suppose there was a pint of it.

Q. Did you observe whether or not the inspector for the Government took any of the rust out?

A. Yes, sir, he took some out.

Q. That is Mr. Wharton? A. Mr. Wharton.

Q. The same gentleman who has helped attach these tags and so forth, here, while you have been testifying?

A. Yes, sir.

Q. How much? Did you observe?

A. No, sir, I didn't observe how much he took. He took the monkey wrench and unscrewed it, and took it with him.

Mr. Butler: We will introduce the exhibits, 14, 15, 16 and 17.

Mr. Scarritt: We make the same objection, your Honor.

The Court: Objection overruled.

Mr. Scarritt: Save an exception.

757 By Mr. Butler:

Q. Did you, yourself, make the arrangement to buy this Alsop process? A. I was present.

Mr. Helm: We object to that as immaterial.

By Mr. Butler:

Q. How is that? A. I was there.

Q. Did you ever inhale any of the odors from the pipe?

A. I did.

Q. Whereabouts?

A. At the mill. I had a hose connected with the pipe leading to the agitators, and as parties had said that it was healthy for anybody to inhale, that there was no injury, that it was only a little gas, I wanted to find out whether it was or not and that is how I came to try it. I inhaled about one swallow every morning for nearly three weeks. Then, my stomach got out of condition, and I quit it, for fear of having to quit eating.

Q. When was that?

A. That was shortly after we put it up; not immediately, but shortly afterward, when I had a chance to have a pipe attached to it.

Q. And was that from the same line which conducted the gaseous medium into the flour, for bleaching it?

A. Yes, sir, same line.

Q. Did you observe what effect the treatment of the flour by this stuff had? A. Oh, yes.

Q. What?

A. It gave it a whiter color. That's the reason we put it in.

Q. How many kinds of flour did you make there?

A. Make almost anything a man wants.

Q. Well, before you commenced bleaching, did you have any standard for patent flour?

A. Yes, sir, we had a standard for patent. Our best patent was the "U. S. Patent." By that name it was sold.

Q. And what percentage was it, before bleaching?

A. Before bleaching it was 55 per cent.

Q. And did you continue to sell a patent under that brand after bleaching? A. I did.

758 Q. What percentage? A. 75 to 80 per cent.

Q. Did you bleach any of your flour, except the patent? A. I didn't bleach all of that, only for a little while.

Q. Well, I mean, at any time did you ever bleach any of your grades lower than the patent?

A. Yes, our agitator was fixed so we could bleach any grade.

Q. And did you, sometimes? A. I did.

Q. What did you call that which was left after you took out the patent? A. It would be extra fancy grade.

Q. Extra fancy patent, or just extra fancy?

A. Extra fancy, but I sold that same flour to other parties, and they sent the brand there to the mill, and they branded it

"Patent". There is no law to prevent you. The Government has not established any grade.

Q. And no state has, either? A. No.

Q. Now, what percentage was this extra fancy that you bleached? A. What we bleached, extra fancy?

Q. Yes. A. About 25 per cent.

Q. 25 per cent? A. Yes, sir.

Q. That was after about 75 per cent was taken off?

A. Yes, sir.

Q. Now, as to the color of the 25 per cent after it was bleached, how would it compare with the patent, before it was bleached?

A. Well, it would not compare equal with that.

Q. Would it be as white, or not quite so white?

A. Not quite so white.

Q. Before bleaching, was there more difference in color, than there was after bleaching?

A. Yes, sir, that is, if you class it against bleached and unbleached.

Q. That is what I meant by my question. Now, as to the effect upon flour—the color of flour, aging it after it has been milled. Does that have any effect upon the color?

A. On which?

Q. On any flour? A. Yes, sir.

Q. Not bleached, I mean. A. Not bleached?

Q. Yes. A. Unbleached flour will age.

Q. And does that affect the color of the flour?

A. Yes, sir.

759 Q. Does it affect the color of the flour?

A. Well, it makes it drier.

Q. And what effect does it have upon the color of the flour? A. It brightens it a little more.

Q. It whitens it some?

A. Yes, sir; the fresh ground flour is not quite as white as if it is three or four weeks old.

Q. Now, with the use of this Alsop bleacher, is there any difference resulting from different degrees or amounts of bleaching? A. Yes, sir.

Q. Explain that.

A. Well I don't know whether I can just explain that, to percentages, or not.

Q. No, I don't mean to percentages, but the general color.

A. If I see the flour and I thought it was too much bleached, I told them to cut some of it off—shut a valve off.

Q. Now, what I am trying to get at is this, the more the treatment, the more the bleaching? A. How is that?

Q. If either treated longer with the Alsop process, or more concentrated gas, does it bleach more than if it is just lightly touched? A. Yes, sir.

Q. And did you, yourself, observe that from time to time?

A. Yes, sir.

Q. And gave directions about it? A. Yes, sir.

Q. Did you, yourself, observe any overbleached flour about your spout?

A. No, not in the spout, but I did in the whole of a certain run, where I did get overbleached flour.

Q. In the whole of a certain run? A. On a day, yes.

Q. Now, what was that? What was the effect of the overbleaching on it?

A. Well it had too much on it and the flour appeared to be dead.

Q. Was it white still, or had it turned yellow?

A. It was white, but a sickly white.

Q. Was that a whole day's run? A. Yes, sir.

Q. What was that—a patent flour?

A. The patent, as well as the other.

760 Q. You bleached both? A. Yes, sir.

Q. Do you remember what percentages you were running, when you got that result, on the whole day's run?

A. Well, we were running then about 80 and 20.

Q. 80 and 20? A. Yes, sir.

Q. Now, what was the color of that—the clear? That, of course, before bleaching would be darker than the 80?

A. Oh, yes, it would be darker than the 80.

Q. You could see a good deal of difference?

A. Yes, sir.

Q. Now, after you bleached that, in the case of heavy bleaching, that day, what was its color?

A. It was a sickly white color.

Q. Sickly white? Now, what was the color of the patent?

A. Well, that is the same way.

Q. They were both of the same color, were they?

A. Both of the same color.

Q. So that this process, there, could take the 80 per cent patent and the 20 per cent, when there is a good deal of difference in color before bleaching, and bring them to the same color? A. Yes, sir.

Q. Did you, yourself, ever have any means of telling whether or not the flour, after it was bleached, improved with aging? A. After it was bleached?

Q. Yes. A. Not that I know of.

Q. Did you, yourself, ever have any means of knowing whether or not it affected it or made any difference in the quality of the dough, or the gluten, or the bread?

A. Why, yes. If you have a flour which is even moderately bleached, and break up the bread immediately after it is baked, you can smell the gas.

Q. That is, when you say immediately after it is baked, do you mean while it is still hot? A. Yes, sir.

Q. Have you yourself done that, or seen it done?

A. The first flour I took home, my wife baked out of it, and she said, "Don't bring any more of that."

Mr. Helm: Now, we object to that.

761 By Mr. Butler:

Q. You brought home some flour, and your wife baked it, now, you need not say what she said. A. All right.

Q. But, did you talk it over? A. Yes, sir.

Mr. Scarritt: Now, we object to that.

The Court: We will take a recess, gentlemen.

(Recess taken for five minutes.)

(The further examination of Witness Krite was then resumed as follows:)

By Mr. Butler:

Q. Now, what was that, a bread or a biscuit, made from this bleached flour?

A. That was both biscuits and bread.

Q. Now, this was the same kind of flour that you were used to, before bleaching?

A. It was our best patent flour, after bleaching.

Q. Did you know what kind of bread and biscuits it had made before bleaching? A. Yes, sir.

Q. How did you know that? A. By having baked it over.

Q. Now, did you open it while it was hot? A. Yes, sir.

Q. Smell of it? A. Yes, sir.

Q. How did it smell?

A. It had this acid smell, the same as the bleacher.

Q. And was that in both the bread and biscuits?

A. Yes, sir.

Q. Was there any difference in strength of smell?

A. No, sir, it was all the same package of flour.

Q. Did you afterward ever try that again, at other times?

A. Yes, sir. Results were the same.

Q. Did you ever try your extra fancy that way, too, when it was bleached? A. Yes, sir.

Q. How about that?

A. The same smell, because we bleached it at that time.

Q. Yes, I know. That is the way I understood you.

762 Now, did you taste it, too? A. Yes, sir.

Q. Did you notice any difference in the taste between the bleached and the unbleached, of the same kind?

A. Yes, sir, there is a difference.

Q. Can you describe it?

A. Well, I will, as near as I can. The bleached flour,—strongly bleached flour,—did not seem to have any taste.

Q. Strongly bleached flour?

A. Yes, sir. That is, except you might tell slightly of the acid, but it didn't have the same flavor of the wheat, as the former flour had—the unbleached flour was much sweeter.

Q. Now, about the color of the bread made from the bleached flour as compared with the unbleached?

A. The color of the bread did not show so much, as it did in the flavor.

Q. What do you mean by that? Make that a little plainer.

A. That is, it don't get so much of a deadly white color as I expected, as the flour showed.

Q. That is, the bread did not have? A. The bread.

Q. Now, after the bread cooled off and became cold, did you notice any difference, then, in the odor?

A. Well, that bread dried out faster than the unbleached.

Q. Dried out faster? A. Dried out faster.

Q. Did you, yourself, have any observation about the kind of dough that the bleached flour would produce, as compared with the same flour not bleached?

A. I frequently doughed up the flour, and our regular, best patent flour, and can dough up and make it as tough as a piece of tissue paper, and tear it out, or widen it, just as I want to, but I couldn't do the same on the patent—or the bleached.

Q. Why? A. Because it broke off.

Q. Well, are you now speaking of the same kind of flour, the only difference being bleached and unbleached?

A. Same kind.

Q. Did you have more than one observation of that kind?

763 A. Yes, I had them frequently, because I wanted to try it, and to see if I couldn't make them both work alike, and I could not do it.

Q. What did you use there,—the bleached patent and the unbleached patent?

A. The bleached patent and the unbleached patent.

Q. Did you ever try it on the clear, bleached and unbleached? A. No, sir, I did not.

Q. Now, as to the color. Did you ever wash out the gluten?

A. Well, I don't do anything with that.

Q. You just took it and doughed it up?

A. I took it and doughed it up.

Q. That was at the mill, was it?

A. It was at the mill.

Q. Now, was that done at different times? A. It was.

Q. Was it done regularly, I mean, or occasionally, as a part of your mill observations?

A. That is part of the milling proposition. If I can't see nothing, I try to feel it.

Q. Now, as to the amount of difference in the dough when the flours are exactly the same, except one is bleached and the other is not bleached, and the Alsop process used, can you tell us something about that? Give us some idea of the amount of difference; was it slight or otherwise?

A. Well, I would have to give you a percentage.

Q. Well, I don't know any way. If you can make it clear—

A. This is about the best way, I think, I can make it clear. We put it in the bleacher, on account of competition in business. Other mills what had bleachers, they turned out a whiter flour, and came into competition with us in price, so our patent was 55 per cent, as the general run, but, after we bleached it, and got into the hang of bleaching it right, we could use 80 per cent, and of course we could compete with them in price.

Q. Well, under the same branding as you did before?

A. Yes, sir, same brands.

Mr. Butler: I think that is all.

764

Cross-Examination

Br. Mr. Helm:

Q. Mr. Krite, I think you say you are 72 years old?

A. I will be 72 in a few months.

Q. And how long since you ceased to have charge and be the practical miller of a mill?

A. Oh, that is a good many years ago.

Q. Before the introduction of the roller system of milling?

A. About that time.

Q. Your milling experience, during the time when you were a miller, manufacturing flour, dates back to the use of the old process, in use prior to the roller mill?

A. Yes. I don't think that has anything to do with this case.

Q. Perhaps not.

A. That is about 30 years ago—25 or 30 years. I had a mill with—

Q. (interrupting) That system of milling is not in use today, very generally, is it?

A. No, sir, but I made just as good a flour then, as now.

Q. Yes, I expect so. And you have had no real experience as a miller, making the flour—I mean the practical miller?

A. I have—

Q. (interrupting) Under present system?

A. I have had just as much experience as him, seeing the flour every day, and being right there on the spot every day.

Q. But you haven't been the miller?

A. No, sir. I don't think that matters any.

Q. Well, perhaps it doesn't. But that is not the question we are considering here. You may answer my questions, please.

A. Well I will try to answer your questions when I can get them.

Q. That is all I will ask of you.

A. That's right. I will try to answer them.

Q. If you will do so—

A. (interrupting) Sure, I will.

Q. (continuing)—without delivering these lectures as to whether they are material or not.

A. Don't tie me down to any secrecy.

Q. How is that?

A. Don't tie me down to any secrecy.

765 Q. I didn't know there was any secret in this.

A. Yes, there was.

Q. There was? A. Yes, sir.

Q. You knew the secret?

A. Yes, when the mills started bleaching, they were very careful not to tell their neighbors a word.

Q. You kept it a secret? A. Of course I did.

Q. You kept it a secret?

A. I didn't keep it no particular secret? Anybody coming to my mill, they couldn't see it.

Q. Now, they could see it in any mill where it was installed, could they not?

A. Not that I know of.

Q. Was yours different than the others?

A. Not that I know of, there was no difference.

Q. But they could see it in your mill?

A. Yes, sir.

Q. They could see it in any of the other mills, couldn't they?

A. Well, I have been in other mills, and I didn't see it.

Q. Well, it is a fact that all mills didn't have it.

A. They did have it.

Q. All mills had it?

A. No, those that had it at that time.

Q. You didn't see them?

A. No. I couldn't see where it was, and I did not want to ask them.

Q. Have you been connected with the same mill during these forty years?

A. Yes, for a little over forty years. That is, it is not the same mill, not the same spot.

Q. But it is the same manufacturing company, or, is it a company?

A. The same company. Our first mill we run there twenty nine years and a half, and that was destroyed by the cyclone in '96.

Q. You reconstructed a new mill?

A. No, sir. We bought another place and built it at once.

Q. But it is the same company and the same capital?

A. Same company. It is a stock company, under the laws of the State of Illinois.

766 Q. And you have how large a mill? What is its capacity? A. About 500 barrels.

Q. Is that as large as it ever was? A. Yes, sir.

Q. Now, you installed this bleaching apparatus and used it about five years?

A. Well, you can easily figure that up. We started it in the first part of 1904.

Q. Well, I am not asking you dates, but putting it in years.

A. Pretty near that, but didn't use it at all times.

Q. Didn't use it all the time?

A. No, sir, because during these five years, we have had very severe times down there, in the milling business and most of the time the mill only run half the time.

Q. When you were running your mill, you used it?

A. Not always.

Q. During the time you were using it?

A. During the time, sometimes.

Q. You shut it off sometimes, and [—] not use it?

A. Yes, once or twice.

Q. And you do as you said—make any kind of flour that a man wanted? That has been your policy?

A. Yes, we can do it.

Q. Yes, you can do it? You can make it bleached flour or unbleached flour? A. Or unbleached flour.

Q. And you can make a high patent or you can make a short patent? A. Yes, sir.

Q. And you do that, do you, to cater to the trade?

A. Yes, sir.

Q. Now, you have had all this time certain brands, have you not, that you have used as your individual brands[or] flour? A. Yes, sir.

Q. What are the names of your brands?

A. One is marked "White Knight." Another is "U. S. Standard."

Q. The first one please? A. "White knight."

Q. The next one?

A. The next one is "U. S. Standard," "Missouri Bells", "Hemico," and a dozen others.

767 Q. How long have you used the "U. S. Standard"?

A. About thirty years.

Q. About thirty years? A. Yes, sir.

Q. Did that name mean anything further than simply to identify your flour? Was there any such thing as a "U. S. Standard"? A. Name of the flour.

Q. That was the name of the flour? A. Yes, sir.

Q. Did you put that on them with any idea that you were making flour that corresponded with any standard that the Government had fixed, and that was a "U. S. Standard"?

A. I don't know of any.

Q. You didn't know of any? A. No, sir.

Q. What did "U. S." mean?

A. Well, it originally meant United States.

Q. United States Standard? A. Yes, sir.

Q. Now, you have used that brand for about thirty years?

A. Yes, sir.

Q. Use it yet? A. Yes, sir.

Q. And you used it before you commenced bleaching?

A. Yes, sir.

Q. Is that your highest grade of flour? A. Yes, sir.

Q. It is? A. That is the highest grade, of that standard.

Q. Well, it is a patent flour, isn't it?

A. Yes, but we can make a better one.

Q. You can make a better one? A. Yes, sir.

Q. But it has been maintained as your standard all that time, hasn't it? A. Yes, sir, as near as we can get it.

Q. As near as you can get it, you maintain the standard. Isn't it a fact that all millers endeavor to maintain the standard of their brands? A. Well, they do, I guess.

Q. In fact, you build up a trade on a brand, do you not?

A. Yes, sir.

Q. Your product goes into the market, and is sold on that brand, isn't it? A. Yes, sir.

768 Q. "U. S." brand, perhaps, is well known in St. Louis, isn't it? A. Oh, yes.

Q. "U. S. Standard"? A. Yes, sir.

Q. You have sold thousands of barrels of it?

A. Yes, sir.

Q. Hundreds of thousands of barrels, perhaps?

A. Yes, sir.

Q. The housewives of that city understand the "U. S. Standard" brand?

A. Why, not all of them; I couldn't say that.

Q. Not all of them, but your customers do?

A. Some of them, and I guess some of them don't.

Q. Yes, but that is worth money to you—that brand you have built up?

A. Why, of course, that brand is of some value.

Q. It is your particular grade of flour? A. Yes, sir.

Q. You have endeavored to maintain that all the time the same, haven't you? A. As near as we can.

Q. As near as you can? Now, you had used that brand for a great many years before you knew anything about bleaching, didn't you? A. Yes, sir.

Q. Used it while you were bleaching? A. Yes, sir.

Q. Now, you endeavored to maintain that standard all the time, didn't you? A. Yes, sir.

Q. What per cent did you say you were making before?

A. 55 per cent.

Q. 55 per cent? And that would make a certain grade of flour, would it not? A. Yes, sir.

Q. And afterwards you say you made what? A. 80.

Q. Did you maintain your standard?

A. As near as we could.

Q. As near as you could; it was just as good afterwards as before?

A. I had to put 80 per cent in, in order to compete with my neighbor.

Q. But you maintained your standard, did you?

A. No, sir, I don't believe, myself, I maintained my standard, but it looks I did.

769 Q. You what? A. It looks, I did.

Q. It looks you did? A. Yes, sir.

Q. Well, it was just as satisfactory to the market, wasn't it? A. No, sir.

Q. Then, you didn't maintain your standard?

A. Well, so far as looking at the flour; that is what I have got to see to, that it is equal to anybody else's flour, or of the same grade.

Q. Well, is there anything else to be considered in determining the value of the flour, than its looks?

A. Not for the present.

Q. Not for the present? A. No, sir.

Q. That determines entirely the question of the value of the flour? A. Its looks, and its baking qualities.

Q. Do you mean by that that the people—the public who used flour, want a white flour?

A. They want a white flour.

Q. They want a white flour, and that is the thing they look to? A. Yes.

Q. And the other things don't count so much.

A. Of course they count.

Q. Of course they count? A. Yes.

Q. You could tell the difference between this flour, bleached and unbleached, could you?

A. Yes, I could tell the difference, when it is—

Q. (Interrupting) Any ordinary flour merchant can tell the difference, can't they? A. No, sir.

Q. What? A. Lots of them can't.

Q. You always marked it "Patent" flour? A. Yes, sir.

Q. Do you have the word "Patent" on all of your flour?

A. No, sir.

Q. You had a "Fancy Patent", did you—"Extra Fancy"? What was that brand? A. "Extra Fancy"?

Q. Yes. A. Oh, yes; I have lots of them.

Q. Well, you spoke in answer to a question of Mr. Butler, about a brand that you called "Extra Fancy".

A. "Extra Fancy."

770 Q. And that was a patent flour? A. No, sir.

Q. I believe you said you put it in sacks that had the word "Patent" on it?

A. No, I told you—told Mr. Butler, that we had sold it to other parties, and they came and put "Patent" labels on it not me.

Q. In your mill, did they? A. Yes, sir.

Q. In fact, didn't you pack it in their sacks?

A. Yes, I guess I did.

Q. And had the word "Patent" on it? A. Yes.

Q. And it went out of your mill, marked as an "extra fancy patent flour"? A. Yes, sir.

Q. Right out of your mill? A. Yes, sir.

Q. And it only contained about 20 to 25 per cent of the flour, after 75 per cent of the best or patent flour had been taken out of it? A. That is right.

Q. It was, in fact, a low grade flour, wasn't it?

A. No, it was not a low grade.

Q. Well, it wasn't a high grade, was it?

A. It was pretty nice flour.

Q. Pretty nice flour? A. Made out of a very fine wheat.

Q. Are you acquainted with the flour that is in controversy in this suit, of the Lexington Mill & Elevator Company?

A. No, sir, I don't know anything about that.

Q. Which is marked, as I remember it, "Fancy Patent"?

The Court: He says he knows nothing about it.

The Witness: I know nothing about it.

By Mr. Helm:

Q. This is marked "Extra Fancy." Yours was marked "Extra Fancy Patent"? A. "Extra Fancy", yes.

Mr. Butler: He said it went out of his mill marked that way. That was after he sold it.

The Witness: Oh, we didn't brand it that way, ourselves.

By Mr. Helm:

771 Q. Well, put in your sacks?

A. No, sir, I told you it was not in our sacks. If a merchant buys anything from me, he can put on it what he pleases, it is none of my business. It is his property.

Q. Does it make any difference to you whether a man comes into your mill, and stamps an inferior flour "Patent Flour" or "Extra Fancy Patent Flour", and puts it on the trade with your name on it?

A. Not in the least, our name is not on it.

Q. Don't you put your name on any of your flours?

A. On the flour what we sell, ourselves.

Mr. Butler: This "Extra Fancy Patent" is what he refers to.

A. If you come to the mill and buy a hundred barrels "Extra Fancy" and you put "Straight Patent", I can't prevent you.

Mr. Helm: Not in your own mill?

A. No, sir.

Q. Well, is that what he put on? That wasn't on when you made it? A. Sir?

Q. He just puts that word "straight patent"—

A. Oh, no. There is various brands. I can't remember them, but after he buys it, it is his property, and not mine.

Q. Are you a practical baker? A. No, sir.

Q. Such tests as you have made, of baking, have been such that you made at home, or that your wife made?

A. Such tests that I have made and have been making for the last 40 years or more.

Q. Well, you made flour before you knew anything about a bleacher? A. I guess I didn't.

Q. Didn't make these tests?

A. No, sir. Before I knew anything about a mixer?

[A.] A bleacher.

A. Oh, a bleacher. Yes, I made them before that.

Q. Now, what is the purpose you have in making these tests, to determine the quality of the wheat you are using—both the quality of the wheat and the quality of the flour—
772 the quality of the flour that will be produced from certain grades of wheat? A. No, sir.

Q. Well, all wheats are not alike, are they? A. No, sir.

Q. And wheat from the same section of the country and from the same variety of wheat, is not the same every year, is it? A. No, sir.

Q. Now, you make tests after each crop, don't you?

A. Make tests nearly every day.

Q. Nearly every day?

A. If I grind hard wheat, I make the same test out of it, or if I grind spring wheat, I make the same test out of it.

Q. But you are testing it, practically, to test the quality of the flour you are getting out of the wheat you are using?

A. That is what I make it for.

Q. And that varies, almost, as you say, from day to day, with your experience?

A. No, it don't from day to day.

Q. I understood you to say you made tests almost every day.

A. Yes, that's right, but haven't I got a right to?

Q. Don't you find it the same every day?

A. Sometimes I do, and sometimes I don't.

Q. It varies quite frequently, don't it?

A. No, sir, it don't.

Q. Tests all the same?

A. Pretty near on a line, when I make the same grade of flour, out of the same grade of wheat.

Q. But there is a difference in the character or color of flour produced from wheat grown year after year? A. Yes.

Q. And a difference in the crops? A. Yes, sir.

Q. And you have a difference in the grade of wheat?

A. Yes, sir.

Q. There is a difference in the condition of the wheat, isn't there?

A. Yes, I have to put it, though, in good condition before I grind it.

Q. But all those things will show this, and can be detected by you in the tests that you make, can they, as to the grade of flour you are getting from them?

A. Well, if I find I am not getting the right results, what I expect, why, then I branch off to some other wheat.

773 Q. You say that you experimented with gas in this machine, breathed it? A. Yes, sir, I did.

Q. Was that soon after you put it in?

A. About a couple of months after I put it in.

Q. And you did that for three or four weeks?

A. No, I didn't say no three or four weeks.

Q. How long did you say?

A. A short three weeks, I had plenty of it.

Q. Short of three weeks? Well, what time did you do it?

A. What time I done it?

Q. Did you use it right away? How long did you conduct that experiment? A. Very near three weeks.

Q. I understood that is what you said before—three weeks.

A. Well, I didn't do it every day, during the three weeks, but three weeks was the experiment.

Q. That was soon after you bought this machine from Mr. Mitchell? A. Yes, sir.

Q. And put it in your mill?

A. No, I bought it from Alsop.

Q. And the gas made you sick? A. Yes, sir.

Q. Affected your digestion? A. Yes, sir.

Q. Did you go to bed? A. No, sir, I did not.

Q. Did you call a doctor? A. No, I did not.

Q. You knew the gas made you sick?

A. Sickness has not carried me to bed, yet.

Q. No? I hope it won't for many years yet.

A. It never did.

Q. You didn't even have to have a doctor? A. No, sir.

Q. But you diagnosed your own case, and knew your trouble was due to this gas?

A. I went to a doctor and told him to give me something for my stomach, and he gave me some pepsin, or something like that—whatever you call it.

Q. And you quit breathing the gas?

A. I quit breathing the gas, you bet I did.

Q. But you didn't quit going on and manufacturing and bleaching your flour? A. No, sir.

Q. You were willing the other people should take it and breathe it and get the same condition that you got?

774 A. I had to bleach the flour, just the same as anybody else.

Q. Notwithstanding it poisons every one of your customers. A. I don't know it poisons every one of them.

Q. You pretend to do business as an honest man?

A. Do you think I could shut up my business, and leave it stand there, and let others do it?

Q. Of course not, but wouldn't you, for such consideration as the life of the people? Would you allow that to prevent you from shutting up your mill?

A. Is there any article—there was no other article—every article of food, nearly, is adulterated in this country.

Q. That is your opinion?

A. Flour, according to my opinion, was the only article left that was not left adulterated, until this bleaching system come.

Q. And you helped to adulterate that, in your opinion?

A. Why, of course I did.

Q. You went at that? A. Yes, sir.

Q. And you had tried it, and found it had made yourself sick? A. Yes, sir.

Q. And didn't care if it made the other people sick?

A. That is their lookout.

Q. That is their lookout? But you are not doing it now?

A. No, sir.

Q. You have reformed? A. No, sir, I did not reform.

Q. Can't make as much money out of it, perhaps?

A. No, I simply obeyed the order of the Government.

Q. Never mind. You can answer my questions.

A. All right.

Q. Now, you say you had a pipe, which you brought in here?

A. Yes, sir.

Q. When were these pipes taken out of your mill?

A. They were taken out the beginning of this year.

Q. Do you know where they have been since that time?

A. No, sir, I don't know where they have been.

Q. Who took them out? A. Mr. Wharton took them out.

Mr. Helm: Is the gentleman here?

775 The Court: Will you please stand up, Mr. Wharton?
(To the witness) Is that the gentleman?

The Witness: That is the gentleman.

By Mr. Helm:

Q. He took them out, some time in January?

A. Yes, sir.

Q. Took them away with him? A. Yes, sir.

Q. You don't know where they have been since that time?

A. No, sir.

Q. You have never seen them from that time till you saw them here in the courtroom?

A. I saw them in the anteroom here this morning.

Q. Well, here in the building somewhere?

A. Yes, sir.

Q. And that was true of these pipe and these valves, and all of these iron exhibits, that you have handled here?

A. Yes, sir.

Q. They were all taken away at the same time?

A. Yes, sir.

Q. You don't know what he has done with them since that time? A. No, sir.

Q. Nor where he has had them? A. No, sir.

Q. Nor how they have been treated? A. No, sir.

Q. Now, you pointed out here, to Mr. Butler: in handling this pipe, some round holes in here?

A. Yes, sir, that's right.

Q. Do you know how those holes were made in that pipe?

A. Yes; we bored them in there.

Q. You bored them in there? A. Yes, sir.

Q. And the gas didn't eat them? A. No, sir.

Q. Then, you didn't want the jury to believe that the gas ate these holes in there?

A. No, I explained to the jury before, we bored those holes in there, and tapped them.

Q. Just answer my questions, and we will get along. The gas didn't do that? A. Didn't make those holes.

Q. They were bored in there?

A. Yes, sir, they were bored in there.

Q. Now, he called your attention to a place where this pipe is cracked here? A. Yes, sir.

776 Q. Do you know what did that?

A. I suppose the gas done it.

Q. Do you know what did it?

A. The gas, according to the best of my knowledge.

Q. Is this gas like a steam pipe, with pressure in it that will burst the pipe? A. Yes, there is pressure in it.

Q. There is pressure in it? A. Yes, sir.

Q. In this gas? A. Yes, sir.

Q. With steam pressure?

A. No, sir, not steam pressure. It is just the pressure of the gas.

Q. And do you say that this crack here was the result of pressure of this gas? A. According to my belief.

Q. That is what did it? A. Yes, sir.

Q. It would take a pretty heavy pressure, wouldn't it, to crack that pipe?

A. If you have a pump there, pumping up and down, pumping this gas into it, right straight along, and you have got the thing shut off.

Q. It would cause this to break?

A. Something would have to break; I don't care whether that broke or something else.

Q. Do you know when that crack was first known to be in the pipe?

A. As soon as we knew it, we took it out.

Q. As soon as you knew it, you took it out?

A. Yes, sir, because the gas escaped in the mill.

Q. Well, how long had it been escaping that way, do you know? A. A few days, perhaps.

Q. And you don't know what did it, only you found it there?

A. Yes, sir, found it there that way.

Q. That is all? A. That is all.

Q. Now, you spoke about these valves—that there were no threads in them. Isn't it true that there are threads in them, just as it was when it was first made?

A. (examining the exhibit) Now, you see there is only one full thread, left. The balance is eat away. You can measure it yourself, if you have got a rule here,—I have not—and find how much it has eat away.

777 Q. Now, these threads—you say there is only one of them left? A. Yes, sir.

Q. They originally extended into this?

A. Yes, about five-eighths of an inch.

Q. About five-eighths of an inch? Now you say there are no other threads there? A. No; you can see it there.

Q. The threads are there.

A. No, there is nothing there.

Q. Well, I think the jury has examined this.

A. Well, they can examine it.

Mr. Smith: If they have not, they will have a chance.

By Mr. Helm:

Q. And you have looked at the other end? A. Yes, sir.

Q. From your judgment and from your inspection, would you say there are no threads there except the first one?

A. That is all.

Mr. Helm: Well, I don't care to have the jury handle it the second time. I think they have already handled it.

Q. Now, do you use any steam power about that mill?

A. Why, of course we use steam power to run the mill.

Q. Do you use steam to cleanse and prepare your wheat for grinding? A. Yes, we do.

Q. You do? You use a great deal of steam at that mill, do you not? A. Not any more than any other.

Q. Well, all mills that use the modern process, steam and get their wheat to a proper temperature, do they not?

A. There is very little steam used in that.

Q. Well, there is some steam? A. Very little.

Q. You use it not only for power, but there are other things you use it for?

A. We use it to temper the wheat, to some extent.

Q. Now, you understand that pipes of that kind will corrode, when subjected to moisture, anywhere, will they not?

A. Well,—shall I answer that question?

Q. If you know.

A. Well, I must answer from experience.

Q. Yes.

778 A. I have had valves like this in use, in water, for thirty years, and the threads were good.

Q. Yes? Well, you have seen others that were thrown to the scrap pile long before that, haven't you?

A. Not in my mill.

Q. Not in your mill? A. No, sir.

Q. Have you had any pipes in your boiler that you have had to take out? A. That is a different thing.

Q. Have you? A. The threads are always good on them.

Q. That don't make any difference. Have you had to take them out, and throw them away? A. Yes, sir.

Q. You have had to take some of your water pipes out?

A. No, sir.

Q. Do you use any? A. Yes, sir.

Q. Have you known about a refrigerator plant—an ice plant? A. No, sir.

Q. Don't know how about that?

A. Don't know anything about it.

Q. You don't know that they have to take their pipes out, every few months, with simply water?

A. I knew that, but from my own experience, I don't know it.

Q. Not from having conducted an ice plant, or anything of that kind?

A. No, sir, I never conducted an ice plant.

Q. But you do know it, as a fact, though?

A. What I answer would have to be what I know, and I don't know that, because I didn't experiment with it.

Q. Not personally, under your observation? Now, you spoke about getting onto the knack of handling this bleacher. That, like all other processes, requires some experience, does it not, to know just how to handle it? A. It does.

Q. And the conditions you found, such as the making of bread, and having overbleached flour, and so forth, occurred in the very early period of your use of that, did they not?

A. No, they occurred later, too.

Q. In '82? A. Later, too.

Q. I believe you mentioned something about having a lot of it returned. A. I did.

779 Q. Of overbleached flour? A. Yes.

Q. When was that?

A. That was shortly after we put the bleacher in.

Q. That was shortly after? A. Yes, sir.

Q. And the baking and the talk with your wife, was shortly after you put the bleacher in? A. Yes, sir.

Q. Now, what other difficulties did you have?

A. Oh, none, particularly.

Q. None, particularly. Now, after you got onto the knack of it, you said—

A. (interrupting) When parties came and wanted to buy flour, if they asked me if the flour was bleached, I would simply tell them it was bleached.

Q. Why, you would not misrepresent it, of course?

A. I never told anybody yet, when I sold them flour—

Q. (interrupting) You never meant to convey any wrong impression, in using the brand, "U. S. Standard", did you?

A. No, I didn't either.

Q. And yet, you know there was no such thing?

A. There wasn't any such thing; there was never such [—] thing. Never any such word as "patent" before—

Q. (interrupting) What did you do with this day's run, that you had this bad flour? A. Sold it.

Q. You sold it? A. Yes.

Q. Did you sell it for flour? A. Yes, sir.

Q. Did it come back on you? A. No, sir.

Q. Didn't find it out? A. Yes, they found it out.

Q. Did they find it out before you sold it? A. Yes, sir.

Q. You were not able to put that in your regular trade, then, were you? A. No, I didn't.

Q. You didn't?

A. Except some of it that went in before I was aware of it.

Q. You found a special customer and told him of the injury to that flour, did you?

780 A. I sold the flour.

Q. Did you tell him what it was?

A. No, sir.

Q. Did you make him a special price on it?

A. No, sir.

Q. But I understood your first answer was that you did not put it in the regular trade.

A. Didn't put it under our brand.

Q. How?

A. Didn't put it under our regular brand.

Q. You didn't put it under your regular brand?

A. No, because I found a chance to sell it.

Q. How did you brand it? A. I don't know.

Q. You don't know? Well, you discovered it? You knew there was something that had happened, that had made that flour overbleached that day, didn't you? A. Yes, sir.

Q. And that occurred just once during your experience, that you had such a run?

A. Yes, it happened to me once.

Q. Just once? A. And that was enough.

Q. That was enough? Now, it was the fault of the way you handled the bleacher, wasn't it? A. Yes, sir.

Q. Your miller?

A. Yes. Well, I don't know, I could not blame him.

Q. Well, somebody—the machine itself didn't work right, or something? You did not have that experience with the rest of the flour, the five years you used it?

A. Yes, I had some, sometimes, that the flour would not go so well, when there was a little too much on, but not after that; after that we didn't bleach the best part of our patent flour, at all.

Q. You did not? A. No, sir.

Q. What did you bleach?

A. We bleached the next grades, which we added to the patent.

Q. You mixed it? A. Yes, sir.

Q. You sold that then as a patent?

A. Of course I did.

Q. You could have done that, without bleaching it, couldn't you? A. No, sir.

781 Q. How?

A. No, sir. That is just what I could not do before bleaching.

Q. And you did do it, afterward?

A. Did, yes, sir.

Q. And you did sell this off day's run to a man, without telling him it was bleached, or that it was overbleached?

A. No, sir; he was a judge of flour, I guess.

Q. But you didn't tell him?

A. Why, no; why should I tell him?

Q. You haven't very great scruples about recommending your flour very highly, then, have you?

A. When I have nothing to recommend, what shall I tell them for?

Q. Your flour isn't worth the recommendation, then?

A. That one item, yes, sir.

Q. You don't aim to make good flour, but to make flour you can get off your hands?

A. We mill, to make good flour,—as good as—

Q. (interrupting) But you couldn't recommend it?

A. Recommend it? Why, what in the world do you mean? Didn't I tell you that was only one item, what we sold? I pretend to make as good a flour as anybody.

Q. Do you want this jury to understand that you, a gentleman who has been in business in the city of St. Louis for forty years—

A. (interrupting) Yes, sir.

Q. (continuing)—have been willing to perpetrate a fraud upon your customers, by mixing inferior flour with superior flour, and selling it as superior flour?

A. I didn't do anything of the kind.

Q. You didn't do anything of the kind?

A. I sold it on the market, whatever it would bring. Sent my sample there, and the man offers me a price, and he can take it.

Q. But you haven't been practicing fraud, at all?

A. No, sir.

Q. Now, you say that you quit bleaching the highest patent?

A. Yes, sir.

Q. And bleached the next grade? A. Yes, sir.

Q. What was the name of your highest patent that you sold it under. A. "U. S. Standard."

Q. "U. S. Standard?" Now, then, you bleached your next grade? A. Yes, sir.

782 Q. That is clear flour, or a straight flour?

A. No, that wasn't the straight flour.

Q. It was a clear flour, then, was it, or was it a patent flour?

A. It could not be a straight flour, because I had already taken so much patent away.

Q. Then it was a clear, was it? A. No, sir.

Q. What was it?

A. It was a part of the extra fancy.

Q. Well, was it a patent, or was it a clear?

A. It was no clear.

Q. It was a patent, then?

A. No, it was extra fancy.

Q. It was less? It was better than a clear, was it?

A. Yes, sir.

Q. So that, when you bleached that, you wasn't bleaching a clear flour? A. No, sir.

Q. But you did bleach patent flour?

A. No, sir, I was bleaching—

Q. (interrupting)—"Extra Fancy"? Is that it? I understood you to say that this extra fancy was what was left after you had taken 75 to 80 per cent of the best flour out of it?

A. Yes, sir, and it was extra fancy.

Q. Now, you bleached this extra fancy? A. Yes, sir.

Q. Which you say was better than a clear?

A. Yes, sir, better than a clear.

Q. What do you call a clear flour?

A. A clear flour is next to an extra fancy.

Q. Still below an extra fancy? A. Yes, sir.

Q. About what per cent do you get, then, of a clear, out of your flour?

A. That depends altogether on how heavy I bleach it.

Q. Can you give us some figures.

A. Now at present, I can give you the figures.

Q. Well, you are not bleaching now? A. No.

Q. You have reformed, to that extent?

A. We have never reformed at all.

783 Q. You haven't?

A. Why should I reform when everybody else bleaches?

Q. I don't know.

A. Well, you might just as well reform in your business and not ask me so many questions which I refuse to answer.

Q. You say you can give me the figures now. Will you please do it. A. I make 55 per cent patent.

Q. What per cent clear do you make?

A. I don't make any clear.

Q. What do you call it after the 55 per cent is taken out?

A. Low grade.

Q. Low grade?

A. That is 55 per cent of it becomes patent, 25 per cent extra fancy, and the balance is a low grade flour.

Q. Well, you are familiar with what millers generally mean when they speak of "clear flour", are you not?

A. It differs, in different localities.

Q. The same as patent does, doesn't it? A. Yes, sir.

Q. You do not understand that there is any uniform patent, or any uniform clear standard, do you? A. No, sir.

Q. Not even of the low grade? A. No, sir. [A. No, sir.]

Q. One miller will have more of one grade, than another?

A. Yes, sir.

Q. Now, what I want to get at is, what was the grade of the two flours. You mixed one part, which was bleached, and the other part was not?

A. I am telling you just as plain as I can tell you that, in order to compete with the trade, I had to take more patent—

Q. (interrupting) I am not asking you what your reason was. A. How is that?

Q. Go on. Perhaps you will get further, if I don't interrupt you.

A. I had to make more patent, in order to compete with my neighbors in price, but that didn't enhance the value of the product a bit.

Q. Did it damage it? A. Why, of course it did.

Q. And still you sold it as "U. S. Standard"? A. Yes, sir.

Q. You haven't yet quite answered. I will try to make myself as clear as possible, as to what I want to get at.

784 A. I hope you did it.

Q. And we will soon be through. Now, I believe you stated, in answer to a question a moment ago that you quit bleaching your patent? A. Yes, sir.

Q. And that you bleached your extra fancy?

A. Yes, sir.

Q. And that you mixed this fancy with your patent and sold it as your "U. S. Standard". Is that the way you understood it?

A. Let me explain something, there. What I mean, we stopped bleaching on the patent, so we made the finest grades of the patent. The balance, what turned a little bit yellow, I bleached, and then, as much as I could, I put into the patent off of that. That went with the patent.

Q. That is to say, with the wheat that you used down there, you got a certain, small percentage that don't need any bleaching? It is white enough? A. Yes, sir.

Q. And then you take the next per cent below that. Can you tell the percentage?

A. No, I can't tell you the exact percentage.

Q. Will it vary with the different wheats? A. Yes, sir.

Q. And the different crops? A. Yes, sir.

Q. And how much do you take off, of this extra fancy, or high patent?

A. Just according to my judgment, so much, so it will be the same looking flour.

Q. The fact is, you don't bleach any clear, at all,—what would be a clear, or low grade? You do, down to what could be made a high patent?

A. Oh, I could bleach the ship stuff, for that matter.

Q. Are you acquainted with hard wheat that is raised in Kansas and Nebraska? Do you use that?

A. Why, yes, we use that.

Q. And you also use Missouri wheat? A. Yes, sir.

Q. Do you get any wheat from the south of you?

A. Yes, sometimes we get wheat from Kentucky and Tennessee, and sometimes we get it from Washington Territory, just according to how scarce it is.

Q. These wheats are not all alike, are they? A. No, sir.

Q. What is the difference between your Kansas hard wheat, and that Kentucky wheat?

785 A. Kentucky is a soft wheat. Kentucky is something similar to Missouri wheat.

Q. And that is softer wheat than the Kansas wheat?

A. Yes, sir.

Q. How does the color of the flour made from it compare?

A. That compares very good.

Q. Which is the lighter—whiter flour—wheat flour made from a Kansas, turkey hard wheat, or made from the Kentucky soft wheat?

A. Well, I have never compared the two together.

Q. You have used both of them? A. Yes, sir.

Q. You don't know?

A. No, sir, not exactly. I found, again, there is a difference in Kansas wheat, also. If I grind Kansas wheat I prefer the Turkey wheat to the other.

Mr. Butler: To the yellow?

A. All of them. I prefer the turkey wheat to the other run of Kansas wheat.

By Mr. Helm:

Q. Does it make a slightly yellow or darker flour than the softer grades of wheat?

A. That depends a great deal on how you grind it, sir.

Q. Well, as a general run, does it? Is there that difference in the wheat?

A. If I grind it from one, I get a pretty white flour.

Q. Can you answer my question?

A. I am answering your question; I don't want to tell you something that I don't know.

Q. Take a carload of Kansas, turkey hard wheat?

A. Yes, sir.

Q. And take a carload of Kentucky soft wheat?

A. Yes, sir.

Q. Treat them both just alike. Is there any difference in the flour? A. Yes, sir, there is.

Q. That is what I am trying to get at. Which is the lighter. A. The Kentucky would be the whitest.

Q. That is all, sir. A. But not the strongest.

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Redirect Examination

By Mr. Butler:

Q. Judge Helm has asked you, when you reformed and quit bleaching and you told him you had not reformed, but you quit bleaching when the Government ordered you to stop?

A. Yes, sir.

Q. Now, when was that?

A. That was—I don't remember dates, but when the Government gave us six months' time to dispose of all the bleached flour, we stopped about a month after that.

Q. And that was 1909, in February, you stopped?

A. February 15th, we stopped.

Q. That was about a month after the order?

A. But there never was any reform.

Mr. Scarritt: What did he say? That he would have been bleaching yet if the Government hadn't stopped him?

Mr. Butler: He didn't say that to me, Judge Scarritt. Did he to you?

Mr. Scarritt: I thought that was what he meant.

Mr. Butler: Well, now, Judge Helm will find out what he means, if you will suggest some question to him. He knows how to do that better than I do.

The Witness: All right, come back at me now, because I will be gone tonight.

By Mr. Butler:

Q. Now, you told Judge Helm that sometimes you did not bleach the highest portions of your best patent, but only the lower portions, with the yellow? A. Yes, sir.

Q. And then you mixed them together, after you bleached them, and sold them all for the patent? A. Yes, sir.

Q. That was the way you lengthened out your patent?

A. That was the way I lengthened out my patent.

Q. He asked you, then, if you couldn't do that before you bleached and you told him you couldn't. I would like for you to tell us why.

A. I couldn't because the flour would not turn that white.

Q. It wouldn't be white enough? A. No, sir.

Q. You have made a shorter patent?

A. We have to mill according to the fashion.

787 Q. Now, some of these millers divided their product into patents, clear, and low grade, and a man from Oklahoma made his division of patents—

Mr. Scarritt: Well I object to his commenting on the testimony of other witnesses.

Mr. Butler: I am not making any comments at all, I am calling attention to it.

Mr. Scarritt: Yes, you are.

Mr. Butler: I am just calling his attention to it; I am not commenting on it.

Mr. Scarritt: Ask him the fact you want.

By Mr. Butler:

Q. I am trying to find out what your extra fancy corresponds to—whether the clear, designated by others here, the bakers' grade referred to by the gentleman from Oklahoma—

Mr. Butler: That is what I am trying to get at, Mr. Scarritt.

Mr. Scarritt: You can get at it in a good deal shorter way.

Mr. Butler: Now, you do it, Judge. I would like to see you try once. We have had all the rest of them.

The Witness: Yes, sir.

By Mr. Butler:

Q. Now, after you take out the patent, you called the next extra fancy? A. Yes, sir.

Q. You did not call anything clear? A. No, sir.

Q. You did not call anything low grade?

A. Yes, I always got low grade, after the extra fancy, unless I made a straight flour, then I don't have any extra fancy.

Q. And you don't have anything you call bakers' grade?

A. No, sir. I simply have a straight flour, and a low grade.

Q. Now, after this bleaching began, I understood you to say this extra fancy, then, was about 20 per cent?

A. Yes, sir.

788 Q. After you took out the patent? A. Yes, sir.

Q. That is, below the patent? A. Yes, sir.

Q. I understand somebody bought that from you, and put it into bags of his own?

A. Branded "Patent"; yes, sir.

Q. Was the name of your mill, or your name on that bag, at all?

A. No, sir, we had nothing to do with that. He simply bought it, and the property belonged to him, and he could brand it.

Q. Put his own name onto it, did he?

A. I guess he did. He branded it what he pleased.

Q. He was a merchant? A. He was a merchant.

Q. He branded that "Patent" did he? Did he call it a "High Patent", a "5-x", or a "4-x" patent?

A. I laughed [—] it, that it turned into a high patent, so quick.

Q. Now, was that, after you got through bleaching it, so it looked without comparison—it looked white, did it?

A. No, that was after I shut down that bleacher.

Q. How is that? A. That was after we quit bleaching.

Q. That was after you quit bleaching that he took this and branded it?

A. Yes, but it was a pretty nice looking flour; there was no low grade in it.

Q. No low grade in that flour? A. No.

Q. And no bleaching in it? A. No, sir, neither one.

Q. Now, something was said to you, just before Judge Helm sat down about this turkey hard Kansas wheat. Is that ground and milled—is it proper to grind a hard wheat in exactly the same way you would grind a soft wheat? A. No, sir.

Q. He asked you the colors of the flour, if you ground them exactly alike. Now, suppose you buy some Kansas turkey hard wheat, and use it to make a white flour, can you make very white flour out of it?

A. Yes, sir, make pretty nice flour out of it.

Q. About as white as—

A. (Interrupting) Good enough for anybody.

Q. Yes?

A. But I wouldn't attempt to grind them the same as the soft wheat.

- 789 Q. You wouldn't get the right kind of flour if you did?
A. I wouldn't get the results.

Witness Excused.

F. Westerman, called as a witness on behalf of the Government, being first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Butler:

- Q. Where do you live, Mr. Westerman? A. Chicago.
Q. What is your business?
A. Manufacturer of crackers and cakes.
Q. Are you alone in business, or associated with somebody else? A. Associated with somebody else.
Q. What is the name of the concern?
A. A. F. Westerman & Co., or, Quaker Biscuit Works.
Q. How long have you been engaged in that?
A. About 13 years.
Q. Does the Quaker Biscuit Works manufacture crackers, exclusively? A. Yes, sir.
Q. Are you, yourself, a practical man? A. Yes, sir.
Mr. Helm: Practical man?

Mr. Butler: I meant a practical man in that line.

The Witness: I thoroughly understand the baking of them, and the mixing of the dough.

By Mr. Butler:

- Q. What volume of business have you? About how much flour do you use in a year, very generally?
A. 12 to 15 thousand barrels.
Q. Do you use bleached flour? A. I have.
Q. Do you use it now? A. No.
Q. To what extent did you use bleached flour in your business?
A. Well, probably three or four thousand barrels.

- 790 Q. In how many years?

- A. Well, I couldn't say about that.
Q. Well, two, or three, or four,—something like that?
A. Well, yes. I might have been using it before I got onto it that it was bleached, and used it before that.
Q. But there was 3 or 4 thousand you know were bleached?
A. Yes; I do know.
Q. What I am trying to get at, would be the proportion of bleached flour, as compared with the other, when you were using bleached flour? A. Well, I think I used about that.
Q. Does your experience with bleached flour enable you to give us an opinion as to the effect of bleaching upon the flour?

A. Yes.

Q. For cracker making uses, as compared with the same flour, not bleached—like flour, not bleached?

A. Flour of the same character?

Q. Yes, sir. That is what I mean. Now, describe to the jury your views about that.

Mr. Smith: Wait. I think we will object to that your Honor,—it is too general. He says "Give us your views about that."

Mr. Butler: Your opinion, then.

Mr. Smith: Well, if he say "opinion", then I know the Court will sustain the objection.

By Mr. Butler:

Q. Well, give us the result of your experience, comparing the baking qualities, for cracker making, of bleached flour, and flour of like quality, unbleached?

Mr. Smith: Object to this, as incompetent, irrelevant and immaterial, and calling for simply a speculative opinion, as to the relative merits, which, I think, falls under your Honor's ruling of the relative odor or a relative taste.

The Court: Oh, no, I think not. He may answer.

Mr. Smith: Exception.

The Witness: It is inferior.

791 Mr. Scarritt: We move to strike that out.

The Court: Yes,—you must give your data—not an opinion.

The Witness: From an experimental stage?

By Mr. Butler:

Q. Yes. Tell us how it works, as compared with the other—flavor, odor and taste?

A. I made a test on 1200 pounds of bleached flour and 1200 pounds of unbleached flour, both at the same time, and, after the process of fermentation—

Mr. Helm: (interrupting) Wait a minute. For the purpose of making an objection, I would like to ask the witness a question, whether or not these flours—

Mr. Butler: Now, just a moment, Judge Helm. I wish that counsel on the other side might arrange so one counsel would take charge of each witness.

Mr. Scarritt: He has charge of it.

Mr. Butler: I know. Then, if he has charge of it, Smith hasn't and you haven't. Now, when there are three lawyers trying to object—

Mr. Helm: We can't all keep up with you.

Mr. Searritt: We have a right to object.

The Witness: (continuing) After the process of fermentation of both flours, I found that the bleached flour had a dark grey color, and of an inferior flavor to that of the unbleached flour, which had a far superior color, and had the natural flavor of the wheat.

By Mr. Butler:

Q. Were you able to observe the relative colors during the baking process?

Mr. Helm: I desire, Mr. Butler, to put in an objection.

Mr. Butler: Very well. Don't answer until counsel have an opportunity to object.

Mr. Helm: If your Honor please, I desire to object to this question, the same as I was trying to object to the other, 792 for the reason the witness hasn't shown where these samples of wheat and flour were obtained from—whether the bleached flour and the unbleached flour were produced from like qualities of wheat, by the same mill, or anything else. One is a bleached and the other is an unbleached, and they are not identified, and the testimony, so far, shows that there is a great difference, depending upon where the wheat is grown, and its quality, whether it is a hard wheat or soft wheat.

The Court: I think that goes to the weight of it, and not the admissibility. He may answer.

Mr. Helm: Save an exception.

By Mr. Butler:

Q. You may answer, now, if you have the question in mind?

A. I found that there was a difference between them, in the flavor, and baking,—did you say?

Q. Yes. I asked you if you had opportunity to observe the colors of each before and during and after the baking process?

A. Yes.

Q. Now, describe that change, in each case?

A. In the baking of the bleached flour, there was a difference in the color of the cracker, also a big difference in the flavor that was emitted from the oven during the process of baking.

Q. When you say "flavor emitted from the oven", what do you mean?

A. The gases that were escaping from the crackers, while they were in the process of baking.

Q. Can you describe that condition?

A. Well, I would say that the flavor, as nearly as I could describe it, would be the same odor that you would get from a galvanizing works.

Q. From which one was that?

A. The bleached, while the flavor from the unbleached was the natural flavor of the wheat.

Q. When you say "flavor", do you mean taste, or smell, in this connection? A. The smell.

Q. Now, during the baking process, was there any other change of color of either kind of crackers? A. Yes.

793 Q. Now, was the change alike in both kinds, during the process of baking? I don't know whether I make

my meaning clear. What I am trying to get at is this: After the cracker has been prepared to bake, and while it is baking, does it change colors, while it is baking? A. Yes, it does.

Q. Now, did these change colors alike, or differently, and, if differently, how?

A. The bleached flour made into dough, goes in dark, and bleached out white.

Q. During the baking?

A. During the process of the baking. While the unbleached goes in with a yellow cast, and bakes out white, with also a slight color on the cheek on the cracker, yellow.

Q. Now, the final product. I would like to have you compare the color—that is, when your crackers are done?

A. Well, we have a white, and one with a yellowish cast to the top.

Q. Which is that?

A. The light would be from the bleached flour, and the one with the yellow tops, would be the unbleached.

Q. Now, with respect to the appearance of bleached flour itself. Are you able to tell whether or not flour has been bleached, by an inspection of it, without a chemical test?

A. No.

Q. Now, with respect to the effect upon grades, or your means of telling one grade of flour from another, it being bleached. What is the truth in that regard?

A. That is, comparing your bleached and unbleached, together?

Q. No. Suppose some bleached flour were presented to you? A. Couldn't tell the difference.

Q. Can you determine, by inspection of it, the grade of the flour? That is what I am trying to get at? A. No.

Q. What grades, all being unbleached, are the whitest?

A. So-called patents.

Q. In the case of bleached flour, is the color of the flour, itself, any guide to determine whether it is patent, or clear, or a long patent, or a short patent, or of the quality of the flour? A. Yes.

Q. How? A. By their different shades.

794 Q. I am speaking, now, of an observation of a single specimen of bleached flour.

A. It is lighter in color.

Q. It is lighter in color? Now, how do the colors of the clears or baker grades, lower than the patents, bleached, compare, generally speaking, with the color of the patents—the lower grades being bleached, and the patents not bleached.

Mr. Scarritt: Don't lead him.

Mr. Butler: No, I am suggesting what I want him to answer.

Mr. Scarritt: That is what I am objecting to. You are suggesting.

Mr. Butler: Well, I will withdraw that question, Judge Scarritt, and I will ask one that will be satisfactory to you.

Q. I want your opinion as to how the color compares, between two flours, one patent, not bleached, the other grades lower than the patents, like the clears, or baker's grades, bleached. A. The lower grades would look whiter.

Q. Than the patents? A. Yes.

Q. Are you familiar with the flours called "straight" flours?

A. Yes.

Q. Now, taking the same types of flours. I want to have you tell us which is the whiter,—a patent flour, or a straighter flour, unbleached? A. Patent.

Q. Now, assuming that the patent remains unbleached, and the straight is bleached, which is the lighter?

A. Straight.

Q. Are you familiar with the natural aging of flour, after it has been milled? A. Somewhat.

Q. You may tell us what, if any, changes occur in the color and quality of unbleached flour, upon its being stored and allowed to age and condition naturally?

A. The aging of the unbleached flour becomes lighter, and, in aging it, it would absorb more water,—drying out.

Q. After it had aged? A. Yes.

Q. Have you observed whether or not like changes take place in cases of bleached flour, with the lapse of time, whether they, too, change, by aging and conditioning, and if so,

795 how?

A. No, I haven't noticed that on bleached flours.

Mr. Butler: I think you may cross-examine.

The Court: I think we will have to quit at this time.

Thereupon Court stood adjourned to 10 o'clock A. M., Friday, June 10, 1910.

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Volume 2.

Morning Session.

Kansas City, Missouri, Friday, June 10, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

F. Westerman, called as a witness on the part of libelant, further testified as follows:

Cross-Examination

By Mr. Smith:

Q. You run a bakery in Chicago? A. Yes, sir.

Q. Where is it located?

A. On Sangamon, between Austin and Kinzie.

Q. What is the name of the bakery?

A. Quaker Biscuit Works.

By the Court:

Q. I have forgotten, where do you live? A. Chicago.

Q. How long have you been running that bakery?

A. The Quaker Biscuit Works about thirteen years.

Q. Now what do you bake there?

A. Well, when we bake we start early in the morning.

Q. I said what? A. Crackers and cakes.

Q. Anything else? A. That is all.

Q. When you speak of crackers, describe that a little more fully; what do you mean, what do you call them?

A. The crackers consist of flour.

Q. No, what do you call the crackers as you put them on the market?

By the Court:

Q. What brand of crackers, water crackers, wafers or what?

A. Soda crackers.

Q. What name do they bear on the market?

A. Quaker crackers.

Q. Is there more than one kind?

A. Well, butters and oysters.

Q. Anything else? A. No.

797 Q. If you would go to a grocery store here in Kansas City and wanted to get some of your crackers what would he call for? A. Couldn't get them.

Q. Can't find any of them in Kansas City? A. No.

Q. Well, where could he find some? A. Chicago.

Q. Any place else? A. I don't think any place else.

Q. If we went in a store in Chicago and tried to get some of your crackers what would we call for?

A. Quaker crackers.

Q. Just Quaker crackers? A. Yes.

Q. Can we get more than one kind of Quaker crackers?

A. You get a soda, get a XXX soda, might get oat meal crackers and the graham.

Q. You make oat meal crackers, do you? A. Yes, sir.

Q. And graham? A. Yes.

Q. But you don't think we can find any of those in Kansas City? A. I do not.

Q. Now what kind of flour do you purchase as a rule in your business? A. Indiana, Missouri and Michigan.

Q. Well, patent flour, straight, clear or what?

A. Straight and patent.

Q. Straight and patent. Where did you buy your last flour? A. The last flour—Joplin.

Q. Missouri? A. Yes, sir.

Q. From whom? A. Dunwoody.

Q. What was the grade of that?

A. That was a second patent.

Q. How much did you purchase there? A. 300 barrels.

Q. Was it bleached or unbleached? A. Unbleached.

Q. Are you sure of that? A. Absolutely.

Q. So provided in the bond, was it? A. How is that?

Q. So provided in the contract? A. Yes, sir.

Q. How long since you bought any bleached flour?

A. Oh, over a year ago.

Q. Where did you buy your last bleached flour?

A. Meyers of East St. Louis or Springfield.

Q. Springfield, Illinois? A. Yes.

Q. How much did you buy then?

798 A. Well, I have been buying off and on, I don't know how much I bought.

Q. How long have you been using bleached flour?

A. I don't know.

Q. Well, how long have you been using it to your knowledge? A. Occasionally.

Q. Well, can't you tell how long you have been using it to your knowledge; how long have you known that you have been using it? A. The reason I can't tell—

Q. No, listen to my question, how long have you been using it to your knowledge? A. Can't answer the question.

Q. I see, do you attend to the baking? A. I do.

Q. Well, now, if you used any bleached flour in the oven didn't you know it?

A. I did not carry on any experiments.

Q. My question is when you used bleached flour in the oven baking crackers couldn't you tell it?

A. Generally, I could, yes.

Q. Well, didn't you know it all the time? A. No.

Q. Why couldn't you tell when you opened the oven that there was something wrong with it?

A. Not until I found that the standard cracker were being impaired for the flavor.

Q. But you couldn't tell it when you opened the oven?

A. The oven was always open.

Q. Well, couldn't you tell by the odor that you were using bleached flour? A. I certainly could after a while.

Q. How long did it take you to get on to that?

A. It took some time.

Q. How long?

A. I could not give the exact number of days.

Q. When was it that you found it out? A. 1898.

Q. In 1908 you mean, don't you? A. Or 1908, yes.

Q. 1908 you found it out, when was it in 1908 that you found it out? A. Sometime about December.

Q. Whose flour were you using then? A. Meyers.

Q. And Meyers is where? A. Springfield, Illinois.

Q. Meyers of Springfield, Illinois, and it was the latter part of the year 1908 while you were using Meyers' flour shipped from Springfield, Illinois, that you first discovered you were using bleached flour, is that true?

A. Yes, sir.

Q. Do you know whether or not you had been using it before that? A. No.

Q. You don't know whether you had or not? A. No.

Q. You are not prepared to say that you had or had not used it before that, is that right? A. Yes.

Q. Why couldn't you tell before that whether you were or not? A. The reason why?

Q. No, no, that is not my question, I am not asking for the reason; I am asking for the fact. Couldn't you tell before that whether or not you were using bleached flour, if you could not, all right, say so?

A. Before 1908?

Q. Before the latter part of the year 1908?

A. I don't think I had used it.

Q. Do you know whether you had or not?

A. Not absolute positive.

Q. You couldn't tell then whether or not you had?

A. No.

Q. I see. Now you performed some baking tests you said I think you said using 1200 pounds each, was that?

A. Yes.

Q. Did I get the figures right, I don't want to misquote you; you [—] 1200 pounds of the bleached and 1200 pounds of the unbleached? A. Yes.

Q. And baked it all at the same time? A. Yes.

Q. Now where did you get that flour? A. Meyers.

Q. Both kinds? A. No.

Q. Well which did you get from Meyers?

A. The bleached.

Q. What was the name of that flour you got from Meyers?

A. Silver Leaf.

Q. Silver Leaf, is that right? A. Yes sir.

Q. And you got that in what month and what year?

A. Well, I wouldn't say just the month, but I was using it in 1908.

Q. What time in 1908?

A. Oh, somewheres around December.

Q. All right, that was the bleached flour, was it?

A. Yes, sir.

800 Q. Now where did you get the unbleached?

A. Joplin, Missouri?

Q. From whom? A. Dunwoody.

Q. And when did you get that?

A. Why, coming about December, somewheres along there.

Q. Of 1908? A. Yes, sir.

Q. When you bought this from Myers the Silver Leaf in December, 1908, or about that time, did you know it was bleached?

A. That is where I was deceived.

Mr. Smith: I move to strike that out as not responsive to my question.

The Court: Yes, it will be stricken out.

Q. The question is when you bought it, did you know it was bleached? A. No.

Q. How did you find it out?

A. By experimenting with it.

Q. What experiment did you perform to ascertain whether or not it was bleached?

A. Mixed up the doughs and looked—

Q. Any other way?

A. And looked for the flavor and results.

Q. Any other way? A. No.

Q. Did you test it with anything? A. No.

Q. To ascertain the presence of nitrites? A. No.

Q. Did you have it tested? A. No.

Q. Well, then do you know as a matter of fact that it was bleached?

A. They acknowledged it.

Q. My question is did you know it?

A. Yes, I know it.

Q. All right; you know it because they admitted it to you afterwards, is that right? A. Yes.

Q. Is that the only way you know?

A. And from general tests and from the flavor I got from it.

Q. Well, now was the flavor of that flour different from any that you had received from Meyers before that time?

A. Yes.

Q. Then you had never got any bleached from Meyers before that?

A. Some shipments, yes, I think I had.

Q. When were those shipments?

A. Well, buying off and on from them I just can't tell the date.

801 Q. Have you bought any from Meyers since that time?

A. I have.

Q. Bleached or unbleached? A. Unbleached.

Q. Now do you know whether or not prior to December 1908 or about that time you had ever received from Meyers any bleached flour? A. Prior?

Q. Yes. A. No.

Q. That is, you don't know you mean?

A. I don't know.

Q. Was this flour that you got in December 1908 different from that which you had received from Meyers before that time? A. Yes sir.

Q. Now what was the character of this you got in December, 1908?

A. Straight or second patent.

Q. What do you mean by second patent?

A. Oh straight I call second patent?

Q. And stright, of course, means the whole flour from the wheat, doesn't it?

A. Well, yes, not the whole thing.

Q. As a matter of fact what do you mean by straight?

A. I think about 5 per cent of low grade taken out of it.

Q. I say as a matter of fact you never bought any high grade flour, do you?

A. The best that I can buy, high grade.

Q. Well, you don't call straight a high grade flour, do you? A. Second patent, yes, I do.

Q. Is that the highest grade flour you can get?

A. No, get one better.

Q. Now as a matter of fact you never bought from Meyers his best flour in your life, did you?

A. Yes, sir, I did.

Q. When was it in December 1908?

A. No, since then, I think this year.

Q. Well, in December, 1908, when you got this flour you knew it was not a high grade flour, didn't you?

A. I knew it was not the highest grade.

Q. As a matter of fact cracker men do not use the highest grade flour making crackers?

A. Yes, sir, they do.

Q. You don't, do you? A. I do.

802 Q. You were not then, were you?

A. I had other flours besides that.

Q. Did you mix? A. I did.

Q. You get flours and blend them, do you, one or two kinds, that is you buy different kinds of flour and you mix them, is that it? A. Yes.

Q. Did you do that in this case? A. No, sir.

Q. You are using this second grade straight or second patent of Myers just by itself, were you? A. Yes.

Q. Now what was the flour that you got from Joplin with which you made the comparison, what grade of flour was that?

A. That was the straight.

Q. That was the straight. Now do you know whether or not that was bleached? A. That was unbleached.

Q. How do you know?

A. Because I bought it unbleached; I had it branded unbleached, shipped unbleached and billed as unbleached.

Q. Well, you knew before that time that they were bleaching flour, did you? A. Who.

Q. Different millers. A. I finally found out, yes.

Q. Well you knew it before you bought this, didn't you?

A. When I made that purchase I did, yes.

Q. Well, now, when you made up this test about the baking you say you made 1200 pounds of each? A. Yes.

Q. What were you making? A. What the makes were?

Q. Yes, what kind of crackers were you making?

A. Sodas.

Q. I see. Did you bake them all at the same time?

A. Alternately, yes, first six barrels of one and six of the other.

A. I am coming down now to the day when you made these tests, how much flour did you mix up on that day.

A. 1200 pounds.

Q. Of each? A. Of each.

Q. That is you took 1200 pounds of the unbleached flour and mixed it up to make crackers, did you? A. Yes.

Q. And you took 1200 pounds of the bleached and
803 mixed it up? A. Yes sir.

Q. To make crackers, make the same kind of crackers?
A. Yes.

Q. Now you personally attended to the mixing of this, did you?
A. I did, yes.

Q. Did all that work yourself?

A. I did not do the work, no.

Q. But you superintended it? A. I did, yes.

Q. All right. Now how do you bake, with what kind of an oven? A. Reel.

Q. Well, what kind of heat, did you have wood or coal or gas or electricity? A. Coal.

Q. It is a soft coal range is it? A. Hard.

Q. Hard coal range. Well, now, what did you put in the oven first? A. The bleached.

Q. Did you bake that by itself? A. I did.

Q. Anything else in the oven at the time? A. No.

Q. And then when you got that what did you do?

A. Started on the unbleached.

Q. Now these flours came from different individuals, different mills? A. Yes.

Q. Well, you know nothing about the wheat? A. No.

Q. You don't know how long they had been ground?

A. No.

Q. You don't know anything about the amount of nitrite that was in the flour that you got from Meyers? A. No.

Q. Is that right? A. Yes, sir.

Q. Now were you making exactly the same kind of crackers?

A. The same kind exactly.

Q. Did you have more than one kind in the oven? A. No.

Q. Are these crackers flavored any way? A. No.

Q. They did not contain any flavoring matter of any kind?

A. None whatever.

Q. Just the flour and water, is it?

A. Flour and water and lard.

Q. How is that? A. And lard.

Q. Well, now you say you could detect the difference in the odor? A. Very distinctly, yes, sir.

804 Q. Could you detect the difference in the odor of the flour before you put it in the oven? A. No.

Q. Did you try it, did you sample it?

A. I sampled it, yes.

Q. Did you smell of the flour, the bleached and the unbleached before it went in the oven?

A. No, not on that I did not.

Q. Did you ever on any? A. I did.

Q. Can you tell the difference between bleached and unbleached flour by the odor? A. No.

Q. Is there any difference between the bleached and the unbleached flour so far as you have been able to observe?

A. Never smelled it.

Q. Didn't you say you had tried it before that?

A. I tried it, sampled it up, we call it.

Q. As you sampled it is there any difference in the odor between the bleached and the unbleached flour?

A. Not by the odor, I did not sample it for that, only for color.

Q. There is a difference in the color, isn't there?

A. Yes.

Q. You said you had sampled it for odor, hadn't you, before that time? A. Not for odor.

Q. Well, you smelled of it, haven't you, to see how it smells? A. Well, I presume I have.

Q. Now from the smell when you had done it before that could you detect whether or not it was bleached or unbleached by the odor of it? A. No.

Q. You could by the color, though, couldn't you?

A. Being bleached?

Q. Yes, sir. A. Only taking it for the higher grade.

Mr. Smith: I move to strike that out as not responsive; these volunteer statements you can get later.

The Court: It will be stricken out.

Q. Can you tell by the color whether or not it was bleached? A. Yes.

Q. What is the difference in the color? A. Whiter.

Q. Is that plain to be seen? A. Very plain.

805 Q. You can tell that every time you look at it, can you? A. I think I can.

Q. Well, can't other people too? A. I don't know.

Q. Have you any special skill or knowledge that way that other people do not possess?

A. I think I have in this grade of flour.

Q. Have you such skill in the purchase of flour that you can tell by the looks of it whether or not it is bleached?

A. Not always.

Q. Did you ever get fooled on them in your life?

A. Yes.

Q. When? A. In being bleached flour.

Q. Whose flour? A. Meyers.

Q. Wasn't the color there very distinct?

A. Not at the time I couldn't tell, because I had nothing but bleached flour in the house.

Q. I see. When was it you got that flour from Meyers that he fooled you on? A. Well, sometime in 1908.

Q. 1908, was it this December flour?

A. No, the shipment came before that.

Q. Shipment came before that and then you can't tell by the color of flour whether it is bleached or not, can you?

A. If I have the unbleached I can.

Q. When you put the two together then the difference is plainly distinguishable, is it?

A. I think it is, yes, sir.

Q. But without, you can't tell from the color of flour whether it is bleached or unbleached, can you? A. No.

Q. I see. Now what was the odor of the baking of crackers, that you refer to, how did it smell like?

A. Coming out the oven?

Q. Yes.

A. Well, I describe it the same as a plating concern, galvanizing factory.

Q. Sort of a galvanized iron shop, is that it? A. Yes.

Q. Very pronounced, was it? A. Very.

Q. Almost made you sick, didn't it?

A. Not exactly, no; didn't get enough of it.

Q. Well, it was nauseating, wasn't it?

806 A. Well, I wouldn't say what.

Q. Well, it smelled decidedly bad, didn't it?

A. It did.

Q. And as you say the oven doors are open all the time?

A. All the time.

Q. Well, as the air would sink over it and the fumes came out it was very very pronounced, wasn't it?

A. After the oven got filled with the gas, out it came.

Q. And as near as you can describe it it smelled like a galvanizing iron work shop, is that it? A. Yes, sir.

Q. Anybody could tell it, couldn't they?

A. Anybody, we all knew it.

Q. If anybody stepped into the room where they were baking that bleached flour bread they detected it suddenly, wouldn't they? A. Yes.

Q. A man, woman or child could tell it, couldn't they?

A. Not child I don't think.

Q. Well, any man or woman could?

A. Or any man [—] had any experience.

Q. And any woman that is used to baking bread could tell it, couldn't she? A. I would not say to that smell.

Q. What? A. I wouldn't say as to a woman.

Q. Well, don't you think women who are accustomed to baking bread can tell those things about as quickly as you can? A. No.

Q. Well, was this difference then so delicate that you think an ordinary housewife could not detect it?

A. Not a house wife but a baker could.

Q. Oh, it was not so pronounced then that a woman in the kitchen would be able to detect it you think?

A. Oh, any one that baked could tell.

Q. A person accustomed to baking the family loaves of bread in the kitchen? A. No.

Q. But that woman couldn't tell about it? A. No.

Q. It takes the exceedingly sensitive nose of a baker to detect that does it? A. Not absolutely, no.

807 Q. Then it was not very pronounced if a woman in the kitchen could not determine it, was it?

A. Well, experienced bakers.

Q. Don't you think a woman in the kitchen could determine the smell of a galvanized iron work shop?

A. I don't know that she had the experience with a galvanized iron shop.

Q. Did you ever have any experience with a galvanized iron work shop? A. Yes, lots of it.

Q. When was it, there in your bake shop?

A. About 15 years ago or twenty.

Q. Now what I want to get from you, Mr. Westerman is this, was the difference in the odor there so marked that if a person who had not been a baker, but an ordinary person in the ordinary walks of life had come there in your bakery, would they have been able to detect any difference in it?

A. They could, yes.

Q. All right, and they did not require an experienced baker to do that would it? A. Not for the difference, no.

Q. If this jury had come into that place at that time do you think they could have detected it?

A. They certainly could, yes.

Q. It was so pronounced as that, was it? A. It was.

Q. Now was it due to the fact that you had such a large amount there? A. That is it exactly, yes.

Q. By baking 1200 pounds you think you are able to detect the difference? A. Yes.

Q. Now, did you ever perform any other experiments with that?

A. Not direct experiments but I found the flour that we used up afterwards the same.

Q. Did you ever buy any bleached flour after that?

A. Never.

Q. Have you bought any flour of Meyers since that?

A. Yes.

Q. Bleached or unbleached? A. Unbleached.

Q. Now to whom did you first make known the fact that you discovered this great difference between the bleached and the unbleached? A. To the broker.

Q. Who was that? A. A party by the name of Smith.

Q. Where? A. Chicago.

Q. What is his address?

A. Now I could not give you his address right this minute, he is a broker there—Smith & Company.

808 Q. Smith & Company, where will we find them?

A. I would have no difficulty, his office is at Lake near Franklin Streets.

Q. Have you dealt with him since? A. Oh, yes, yes.

Q. But you can not give me his address any more definitely than that?

A. Well, it is along Lake and Franklin, I don't know, I don't know, he moved here.

Q. Did you return any of this flour to him?

A. I did not, it was already paid for.

Q. So that you used it? A. We used it.

Q. Now did you make any complaint to any other person?

A. Oh, I have yes.

Q. Since that? A. I think I have.

Q. When did you first make known to the Government or any of these parties your experience with this flour?

A. Why, I think somewhere around right after that—1908.

Q. You made complaint? A. I did, yes.

Q. To whom did you make complaint?

A. Secretary Wilson.

Q. You sent him a written communication? A. I did.

Q. Complaining of the patent or bleached flour? A. Yes.

Q. I see. Now you had used it before this time, hadn't you? A. I did.

Q. Have you used it since? A. No.

Q. Do you store flour there at your bakery? A. Yes.

Q. How long? A. Well, that is hard to tell.

Q. Well, about how long?

A. Oh, from six to eight weeks, probably.

Q. Where did you store it?

A. In the basement of the warehouse, ground floor.

Q. Now have you ever noticed what was the effect upon flour that you stored there in your warehouse as to whether it acquired any of these properties of bleached flour or not?

A. I don't think it did.

Q. Have you ever tested any of it to see?

A. Well, I have at times just as to color.

809 Q. What is the effect of storing on the color?

A. Well, it may bleach a little.

Q. Does bleach it some, does it? A. A little, yes.

Q. Then after you store it in your warehouse there for a while you have got bleached flour then haven't you?

A. The color bleached, yes.

Q. You don't know the difference between the natural bleach and the artificial bleach so far as imparting anything to the flour do you? A. Imparting?

Q. Yes sir. A. I don't think I do.

Q. You don't know anything about that. I believe that is all. You said this was Springfield, Illinois, did you not?

A. Yes.

Q. And the other one was at Joplin, Missouri?

A. Joplin, Missouri.

Redirect Examination

By Mr. Butler:

Q. Is there a Meyers at Springfield, Missouri, too?

A. Springfield, Missouri, yes, they got an office at St. Louis, too.

Q. This same Meyers had a place at Springfield, Illinois, and at Springfield, Missouri?

A. No, I made a mistake, that is Springfield, Illinois, I think, if I am right.

Q. At any rate, it is Springfield, Missouri, or Illinois?

A. Yes, sir, either one of those.

By Judge Helm:

Q. Don't you know which, whether it is in Missouri or Illinois?

A. It is either one or the other, Springfield, Missouri, I know they have their office at St. Louis.

Q. But you don't know where their mill is?

A. No, I do not.

By Mr. Butler (resuming):

Q. Now you bought through a broker? A. Yes sir.

Q. Now in the taking of the 1200 pounds of bleached and 1200 pounds of unbleached, did you bake up all the 1200 pounds at once of each kind or did you bake alternately a part of each? A. 1200 pounds of each.

Q. 1200 pounds of each? A. Yes.

Q. You baked the whole 1200 pounds at one lick?

A. No, not at one lick, no.

810 Q. That is what I was trying to get at?

A. No, kept right on baking them in until it is baked.

Q. You kept putting in the bleached until the bleach was all gone and then the unbleached?

A. First the bleached and then the unbleached.

Q. Yes, until it was all gone. You told Mr. Smith that you couldn't tell the difference between the unbleached and bleached flour on one occasion because you had nothing but bleached in the house; what did that have to do with it?

A. I could not detect from the colors of the flour in comparing them together.

Q. Well, how did you detect it when you have both kinds?

A. Well, they both look alike, that is when I had all bleached.

Judge Scarritt: That is, all bleached flour looks alike, is that right?

Mr. Butler: Yes.

Q. Well now how would having unbleached flour aid you in telling bleached flour?

A. It would have that yellow cast to it.

Q. And how do you compare the colors, what method do you employ? A. How is that?

Q. How do you compare the colors, what method do you employ, how do you do it, look at one—

A. Then the other, put them both side by side and slick them down.

Q. And slick them down? A. Yes.

Q. You couldn't tell that you had bleached flour because you had no unbleached to compare with it?

A. That is it, I could not under those conditions.

Q. That is all.

Recross Examination

By Mr. Smith:

Q. I just want to be sure that I got the names of these parties and their location, Meyers you say is at Springfield, Illinois? A. Yes.

Q. And the name of his flour was? A. Silver Leaf.

Q. And the man at Joplin, what was his name?

A. I beg pardon on that, that was "Puritan" and the Joplin was "Silver Leaf".

811 Q. Puritan? A. That is it.

Q. And the Joplin is Silver Leaf?

A. Silver Leaf, yes, that is right.

Q. And what was the man's name at Joplin?

A. The Dunwoody Milling Company I think it was.

Q. And the grade of the flour that you got from Springfield was what you call a straight or second patent?

A. A straight.

Q. Straight, and what was that you got from Joplin?

A. The straight.

Alexander Taggart, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

- Q. Mr. Taggart, where do you live? A. Indianapolis.
- Q. What is your first name? A. Alexander.
- Q. Alexander Taggart. What is your business?
- A. Baker.
- Q. How long have you been a baker?
- A. Over fifty years.
- Q. What is the name of your concern?
- A. Taggart Baking Company.
- Q. And about the volume of it, what do you bake—bread?
- A. Bread mostly.
- Q. What is the volume of your business your daily output?
- A. You mean in barrels of flour or—
- Q. In barrels of flour and loaves of bread?
- A. Well, about 150 barrels of flour a day, and about a little over 35,000 loaves of bread.
- Q. And where do you find a market for your bread?
- A. Mostly in Indianapolis.
- Q. Do you yourself now give attention to your business?
- A. I do.
- Q. Were you formerly a practical baker?
- A. Yes, I worked at it for 20 years.
- 812 Q. What is your age? A. 66.
- Q. And is the bakery company a corporation?
- A. It is.
- Q. Are you one of its officers? A. I am.
- Q. What office? A. The treasurer.
- Q. Now what do you have to do now with the observation of the quality of bread at your place?
- A. I have a general superintendence of all the stuff that is manufactured, the bread and crackers especially, there are samples of all the bread made brought into my office every day and it is a part of my duty [is] to examine that bread.
- Q. Have you had any experience with bleached flour?
- A. I have.
- Q. When was that and to what extent?
- A. About four years ago.
- Q. Do you now purchase bleached flour? A. No, sir.
- Q. Did you ever purchase bleached flour regularly, sir?
- A. Not knowingly.
- Q. Do you sometimes store flour at your place?
- A. We do.
- Q. Have you had opportunity to observe the effect upon the color and quality of flour resulting from aging or storing, I mean flour that is not bleached? A. I have.

Q. Have you also had opportunity to observe the effect on flour of bleaching as to its bread making qualities?

A. Yes.

Q. You may describe that?

A. One morning about four years ago when I went in the office—

Judge Scarritt: We object to that. He asked him to describe the method not what he did a morning four years ago.

Mr. Butler: No, I did not intend to ask you.

Q. You may describe the effect on the bread making quality of bleaching, the effect is very different from the method.

Judge Scarritt: That is what we object to.

Q. Well, when was it, you need not tell whether it was in the morning or afternoon.

A. On examining the bread made the night previous I
813 found the bread was not of the quality that it had formerly been. Naturally I examined it more closely. I cut it open; I smelled of it, and I examined the color, and I found that instead of having the color that we had had the day before, it was an entirely distinct color, that it had a nasty, slaty color, and that when you smelled the bread as bakers do, to get the flavor, there was an absence of the flavor that ought to be there, and I then inquired what kind of flour this was made of.

Judge Scarritt: Now wait a minute.

Q: Where had you been buying your flour?

A. Well, we buy flours from various mills, sir. We buy from W. J. Jennison & Company of Appleton, Minnesota; we buy from Stokes Brothers, let me see there, we buy from several mills, I really don't remember them all; we buy from a number of mills in the Northwestern country, and also from Atchison, Kansas, and from Indianapolis and from Southern Indiana, and from Michigan; we buy flour of other mills.

Q. Where did this flour come from?

A. It came from W. J. Jennison & Company of Appleton, Minnesota.

Q. And that was in what year?

A. About four years ago—1906.

Judge Scarritt: Four years ago,—1906.

Q. You remember the season of the year?

A. Well, I think it was about this time, a little earlier than this, probably during the early spring.

Q. Did you have any other occasion at which you observed this effect in your bread?

A. Not in our bread, but in our crackers.

Q. When was that?

A. The first of that was two years ago about.

Q. Where was that flour procured?

A. From George T. Evans & Son, Indianapolis.

Q. That is your own city? A. Yes.

Q. What did you observe in that regard?

A. I observed that the crackers instead of being the brittle, nice, rich appearance, that they were slaty and baked hard, and when you tried to dissolve them in water they would not dissolve as they had been doing formerly.

814 Q. What kind of flour, brand of flour was that you got from Evans, do you remember its name?

A. It is their patent.

Q. Were you familiar with that brand of flour?

A. I was.

Q. And had you been using it?

A. I bought it for thirty years.

Q. And with respect to this flour that you bought at Appleton, Minnesota, what brand was that? A. Their very best.

Q. And had you been familiar with that brand?

A. We had.

Q. For how long? A. Oh, for years.

Q. Have you had any other experience with bleached flour?

A. Yes, sir.

Q. When was that?

A. That was about 18 months ago, probably a little over, I don't remember the exact date of that.

Q. Whose flour was that?

A. It was made at the Genessee Milling Company from Flint, Michigan.

Q. What brand of flour was it?

A. It was supposed to be a high grade winter, they branded it "H H" or we did rather to define it.

Q. Now you may describe your experience with the flour?

A. Well, that was—the crackers we found were in the same condition as they had been with the Evans flour; they were flinty instead of being brittle and crisp.

Q. Now as to the odor and taste of the bread when bleached as compared with the unbleached, can you tell us about that?

A. Well, the odor from the bread would be scarcely discernible, because the bread was cold, you see, when I examined it, so that the odor would be scarcely discernible. Taste is such a peculiar thing that it is hard to describe it. I can only tell you in this way that if you are eating a piece of bread on the table, if the bread is good, you eat a lot of it; if it is

poor, you only want one piece, that is from the absence that you get from the good flavor. Now this bread that is made out of bleached flour has an absence of the good taste or the good flavor.

Q. Now with respect to the odor and taste of crackers
815 from bleached flour?

A. Well, I could say but little about the odor; the taste was—you see crackers are salable only when they have a good rich flavor, and the crackers made out of bleached flour did not have that flavor.

Q. Now in addition to these occasions that you have referred to, have you had any other bleached flour?

A. No, sir, not that I know of.

Q. Are you familiar with the color of flour, the natural?

A. I am.

Q. And unbleached. In cases of unbleached is the color of any value in determining the quality of the flour?

A. Yes, sir.

Q. How so?

A. Well, when you get a rich patent flour, it has a yellow white—has a white color, with a little yellow streak running through it, it gives it a rich appearance, the color has to be white or you can not, well, else it would not be a high standard flour.

Q. You said yellow streak; did you mean streak or shade?

A. Shade, yes, I should not say streak.

Q. Did you use soft wheat flour too? A. Yes sir.

Q. From what region?

A. From Michigan, from Southern Indiana, and from Central Indiana.

Q. Any hard winter wheat flour?

A. Well, we use a little hard winter we use some hard winter from Kansas.

Q. Any hard spring?

A. That we get from Dakota and Minnesota.

Q. Now of these three kinds of flour, the soft flour in your own region, the hard winter from Kansas, the hard spring from Minnesota, which is the whitest flour of light grade? A. Well, I should say the soft winter.

Q. And the next whitest to the soft winter?

A. The Kansas.

Q. And the next? A. And the Minnesota.

Q. Spring? A. Yes, Minnesota spring.

Q. So then of the three kinds that you got the soft wheat produced the whitest flour? A. Yes, sir.

Q. The Kansas hard next and the Minnesota spring hard next? A. Yes.

816 Q. Now as respects the strength of the flour—elasticity?

A. Well, the northern, the Dakota and Minnesota flours are the strongest.

Q. And the next? A. The Kansas.

Q. And the next?

A. The soft, the Indiana or Michigan winters.

Q. The soft wheat? A. The soft wheat, yes, sir.

Q. So then the whitest wheats are the least strong?

A. With us, they are, yes sir.

Q. And strength seems to keep pace with color, that is, the white flours are the weaker, and as color increases the strength does as far as those three kinds that you have spoken of? A. That is right.

Q. How long have you been familiar with these three kinds of wheat flour—flour made from these three different kinds of types of wheat?

A. I have been familiar with the Indiana soft wheats ever since 1865, with the Kansas or Nebraska wheats since 1880, and with the northern, the Dakota and the Minnesota well, I would say 25 years ago, since 1885, probably a little before that.

Q. What kind of wheat employed by the Evans mill at Indianapolis was used?

A. Well, they are supposed to grind Indiana wheat mostly.

Q. You know Mr. Evans, do you?

A. Well, the old gentleman is dead; I know the son very well.

Q. Did you know his father? A. Very well.

Q. Being connected with the mill. Do you know the particular kind of bleaching machine he had in?

A. Well, I know it is some kind of an electric bleacher, that's all, the son told me, that's all I know about it.

Judge Scarritt: We ask that that be stricken out, what his son told him.

The Court: He said "I know some kind of electric". That may stand. What the son told him may go out.

Judge Scarritt: It is all the same thing.

The Court: Let it all go out.

By the Court.

Q. That is all you know what his son told you?

A. Yes, sir.

817 By Mr. Butler:

Q. You never saw the machine yourself?

A. Never; he asked me to come to see it.

Q. You know the Alsop bleach? A. No, sir.

Q. You are not familiar with it?

A. No, sir, not familiar with any bleacher.

Judge Scarritt: I want to move to strike out all of this witness' testimony, for the reason that it pertains in no way to the issues made by the pleadings in this case, in that all his testimony does not refer in any instance to the flour in question or to the bread made from the flour in question, or to crackers made from the flour in question, and does not pertain in any way to the flour in question or to the mill or process in question.

The Court: Which motion is overruled. To which claimant then and there duly excepted.

Cross-Examination

By Mr. Smith:

Q. Mr. Taggart have you ever had any experience in using either Kansas or Nebraska hard wheat bleached? A. No, sir.

Q. You never had any flour that came from the Lexington Mill and Elevator Company at Lexington, Nebraska?

A. No, sir.

Q. And have you had any experience in the use of any flours that was made from Nebraska wheat so far as you know?

A. Do you mean bleached or unbleached?

Q. Either one that came from Nebraska wheat? A. Yes.

Q. Where did it come from? A. Nebraska City.

Q. Sminkey's mill? A. Sminkey's mill.

Q. How long ago? A. Oh, 25 or 30 years ago.

Q. You have not had any in the last 25 years?

A. No, sir.

Q. Have you had any experience in the use of any Kansas wheats that were bleached? A. No, sir.

Q. You don't know anything about what would be the relative bread making qualities then of any hard wheat of Nebraska or Kansas that was bleached or unbleached, do you?

A. The unbleached, yes.

818 Q. Well, I say you never had any experience in the comparative value of Nebraska wheats that is bleached and Nebraska wheat that is unbleached? A. No, sir.

Q. And that is true of Kansas, isn't it? A. Yes, sir.

Q. And it is true of Missouri, isn't it? A. Yes.

Q. So you are not able to tell the jury anything about what would be the result on the bread making qualities of the wheats coming from either of these states if it was bleached?

A. That is right.

Q. Have you ever purchased any wheat from any mills here in Kansas City? A. You mean flour or wheat?

Q. Flour, I beg pardon? A. No.

Q. You never received any wheat from them that was bleached, flour from [—] that was bleached?

A. I never purchased any.

Q. Well, have you ever purchased any from a broker that was milled at Kansas City?

A. No, never buy from brokers.

Q. Now this flour, bleached flour, that you had your experience with four years ago was what kind of wheat?

A. It was supposed to be northern spring.

Q. And do you know by what process it was bleached.

A. No, sir.

Q. Do you know anything about the extent to which it was bleached? A. No, sir.

Q. What I mean is did you have any test made of it?

A. No.

Q. How did you ascertain that it as a matter of fact had been bleached?

A. Because their agent, whose name I suppose you want to know, Robert Pythian was the agent of the W. J. Jennison Company, in Indianapolis, I sent for him and told him that this flour was bad; I didn't know what was the matter with it; I had never had experience with bleached flour; he wrote the mill immediately and the mill sent back a letter, he showed me that the flour was not off grade but had been slightly bleached.

Q. I see, and that is the way you ascertained it?

A. That was it, yes.

Q. Now the effect of this slightly bleached was to whiten the flour?

819 A. I did not examine the flour particularly. I spoke with reference to the sale of it, being baked in bread.

Q. You don't remember having seen the flour at all?

A. Well, a small quantity I examined afterwards.

Q. Well, was it whitened by the bleaching process?

A. Well, I doughed it, and then in the doughing it was not any whiter but it was a soft putty dough.

Q. Do you know how long the flour had been milled?

A. Oh, I don't know, probably we had it in the house probably three or four weeks.

Q. But how long had it been milled before that to your own knowledge?

A. It would be on the road about a week or two.

Q. Yes, of how long it had been stored at the mill you have no knowledge? A. No.

Q. You don't know anything about the history of it before you received it?

A. Oh no, we did not get the history of it.

Q. Now in the bread that was made from it was the difference in color observable? A. Yes.

Q. That anybody could see that came along?

A. Well, no, not any person.

Q. Well, a person that had good eyes could see it, could they? A. No.

Q. If a customer had been buying bread from you right along, and then on that day had bought some of this bread, would the customer have been able to notice the difference?

A. The chances are they would not.

Q. It was so nearly alike that you think a customer would not have observed it?

A. Well, the customers didn't always observe the color of the bread.

Q. No, but if the customer had been buying your bread right along, and on this day had bought some of this bread, was there anything about it that would have attracted the customer's attention? A. No.

Q. He would not have noticed it? A. I think not.

Q. If the family had been buying your bread right along?

A. Yes, sir.

820 Q. From your bakery and had bought some of this flour on that day you think they would not have noticed any difference at all?

A. You mean bought some bread?

Q. Yes, sir, bought some bread, yes sir?

A. I think when they would have been eating it they would have discerned that it was not quite as good to eat; there would have been an absence of the good flavor.

Q. All right. You think that the difference in the flavor was such that family that was eating it would have observed it?

A. Well, you see the baker there is your fine judge, that only a man that is in the bread and cracker business that realizes the value of the little difference in flavor.

A. Yes. The flavor of the bread or the crackers makes the baker, if he gives the right flavor, take it yourself when you are eating at a hotel and you take a cracker that has a good flavor, you will take another and another.

Q. Yes.

A. But if that cracker does not have a good flavor why you would not say it was a better cracker.

Q. Yes.

A. But it would not have that, that would attract you, and the result would be that you would not eat a second one.

Q. Now lets come down to the ordinary family now that is buying bread of you from day to day, and have been right

along accustomed to use your bread from your bakery, if on the day in question they had purchased two loaves of this bread and taken it home, and had eaten it at the family table, do you think the difference was such that they would have observed that it was any ways different from the bread we got yesterday or the bread we got the day before?

A. Well, it is very doubtful.

Q. The difference was such that it took the trained taste and the trained nerve of the bakery man to detect it, was it?

A. That is right.

Q. But you think you could detect it?

A. Oh there is no thinking at all; I know that.

Q. And there is no thinking about what the ordinary family would do, you know that, don't you?

821 A. No, I don't know that.

Q. You don't know that? A. No.

Q. But your judgment was that the distinction there was so finely drawn that if [if] I had taken it home to my family the chances are we would not have noticed?

A. Well, you would not have eaten much of it.

Q. Do you think I would have noticed the difference?

A. In the way that I described to you you would have known the difference.

Q. Well, then it would be that that bread did not give satisfaction in my family, wouldn't it?

A. You are right.

Q. And if it did not give satisfaction of course I would quit wouldn't I? A. You would.

Q. And that would react on the miller who furnished it, wouldn't it? A. Yes, certainly it would.

Q. So if the miller was putting out flour then which did did not give any effect, he is the man that is going to suffer from it, isn't he?

A. What do I understand when the miller gives it the bread didn't give any effect?

Q. Just as he gave it to you, that didn't give any effect, or didn't give satisfaction, I quit buying from you, you quit buying his flour, and he is the man that would suffer, isn't he?

A. Certainly,—well, he would not know it.

Q. Well he would suffer because you would not buy any more from him, is that right? A. Yes.

Q. So he is the one that would get it in the end?

A. I think he would; I think he deserves it.

Q. Yes, if he does it. A plan that don't give his customers satisfaction he is the one that suffers, isn't he?

A. Certainly.

Q. Now about two years ago you made some tests on crackers; where did you get that flour from?

A. From George T. Evans & Son, Indianapolis.

Q. They are brokers, are they, or millers?

A. No, sir, millers.

Q. Do you know where that wheat came from?

A. No, sir.

822 Q. Know nothing about that?

A. Supposed to come from Indiana.

Q. Oh I see. Is it winter wheat or spring wheat?

A. Winter wheat.

Q. Now I believe you said in giving the relative strength of these flours, I don't know as I took that down there; which one do you say has the greatest strength?

A. Why, the northern springs.

Q. And how is the color of the northern springs?

A. Well, it is darker generally.

Q. What is the next one in strength?

A. I should say Kansas or Nebraska.

Q. And what is the next?

A. Well, then, the soft winter wheats.

Q. Soft winter. Now where do you get your soft winters?

A. From Evansville, Indiana, or Flint, Michigan.

Q. Now what grade of flour do you use mostly?

A. Patents.

Q. Well, I mean though with reference to these wheats?

A. The northern springs.

Q. Northern springs? A. Yes.

Q. You use that mostly? A. Yes, sir.

Q. And what do you use next after that?

A. We use the George T. Evans & Son's or the Acme Milling Company now.

Q. And how is that as to strength?

A. Oh, it is a weaker flour.

Q. How as to color? A. This is a better color.

Q. Whiter? A. Whiter, yes.

Q. Why do you use that instead of the flour that is stronger?

A. We use it for a different purpose.

Q. Well, what is the purpose?

A. To make cakes and crackers; you can make crackers out of northern spring.

Q. Why not?

A. Because it is too strong; you have to work it too long to get the strength out of it.

Q. Well, in the selection of your flours do you make any difference in color? A. Oh yes, sir.

Q. What kind of a color of flour do you select?

A. Select a white rich color.

823 Q. Why do you select the white?

A. Well, because it is the better flour.

Q. Trade demands it, does it, that is, the trade wants a white loaf of bread, does it?

A. Well, fairly white, not altogether white.

Q. Well. A. Not a dead white.

Q. They prefer a white loaf of bread to the yellow loaf of bread, don't they?

A. Comparatively, you see you must remember that there is a white loaf of bread and a yellow loaf of bread.

Q. Yes, sir.

A. But the white loaf of bread with the nice rich yellow color going all through it is preferable to the dead white loaf of bread.

Q. Yes, sir, but it is true, is it not, and you find it in your experience that the trade wants pretty white loaf of bread?

A. Sometimes yes, excuse me now till I get that answer right.

Q. Yes.

A. They don't want a dead white loaf of bread if the flavor is absent.

Q. Oh no, but other things being equal if the flavor is present and the odor is present they prefer a white loaf of bread to a dark loaf of bread or yellow loaf of bread.

[—] You can not get a dead loaf of bread with a good flavor.

Q. You don't answer my question. Assuming that the flavor is the same and the odor the same and the taste the same, then they prefer a white loaf of bread, don't they?

A. That is impossible.

Q. No, now you don't answer my question, pardon me, for saying that I understood you said if the flavor was the same, and the color was the same, and the odor is the same, they prefer a white loaf of bread to the other, don't they? A. Yes.

Q. You find that in your trade, don't you? A. Yes, sir.

Q. And for that reason in purchasing the flour you aim to get, other things being equal, as nice and white a flour as you can don't you? A. Yes.

Q. And other things being equal, the white flour will make a bread which the public demands, better than a yellow flour, won't it? A. Other things being equal.

824 Q. Yes, I am assuming that that was the case. Just one or two further questions, Mr. Taggart, can you tell me when it was you got this wheat from the Atchison, Kansas, mills? A. We haven't had any for over a year.

Q. Well, do you know from whom you got it?

A. Lukens Milling Company.

Q. Now do you know the grade of that?

A. It is their patent.

Q. Was it bleached?

A. I don't know that it was, but it was not satisfactory, so we quit buying it.

Q. Well, now, do you know whether the lack of satisfaction was due to the fact that it was or was not bleached, too?

A. No, sir.

Q. Did you make any tests of it? A. No, sir.

Q. Did you examine the bread made from it?

A. Yes, sir.

Q. Now what was the character of that?

A. Well, it was fairly good bread because it was mixed; you see we used all our flour mixed or nearly all.

Q. What do you mean you mixed it after you get it?

A. Yes, sir.

Q. Well, do you always do that? A. Nearly always, yes.

Q. Well, did you in this instance? A. Yes, sir.

Q. Well, now, do you mix these other flours that you have been testifying to? A. Yes, sir.

Q. That is when you got this unsatisfactory result from bread you had been mixing the flours? A. We had.

Q. And when you got this unsatisfactory result as to the crackers you had been mixing? A. We had.

Q. Well, do you know whether all of that flour that you mixed together had been bleached or just a part of it?

A. A part of it.

Q. The other you don't know? A. The other was not.

Q. Now Evans there at Indianapolis did they run more than one mill? A. He did not then.

Q. They do now? A. Well.

Q. There was a consolidation there, was there?

A. There was a consolidation there.

Q. Now I believe you said a few months, or eighteen months, it was two years ago that you had the Evans flour?

A. Just about.

825 Q. With which you had the accident? A. Yes, sir.

Q. Now do you know whether Evans was bleaching then or not? A. He told me he was.

Q. Do you still buy Evans' flour? A. We do.

Q. Now do you know whether he is giving you bleached flour now or not? A. Well, I should say—

Q. Well, what is the fact?

A. He is not bleaching it what he sells us.

Q. What does he sell you now? A. His patent.

Q. What is it called?

A. I really forget the name now.

Q. Now don't you know that all the patent flour that Evans put out now is bleached? A. No, I do not.

Q. Well, can you give me the name of this flour, that you are getting from him, do you know what he calls it?

A. McBeth.

Q. Now do you know whether or not the McBeth flour made by Evans as he is putting it on the market now, do you know whether that is or is not bleached?

A. If you will allow me to answer the question in this way, that what he grinds for us is not bleached, he gives me his word, and he is a young man of, I would say, very high character, and he tells me that the McBeth that he grinds for us is not bleached.

Q. Well, do you know whether he makes a difference for the grinds for you and the McBeth that he grinds for other people? A. I don't know it, but he says he does.

Q. He says he makes a difference?

A. He says when we give him a order for 500 barrels, which we do at a time, he grinds it specially unbleached.

Q. He runs it specially for you? A. So he says.

Q. But the McBeth that we find on the market in Kansas City, if we can find any, you don't know whether that would be bleached or unbleached?

A. No, I know nothing about that.

Q. Don't know about that? A. No.

Q. I wanted to keep track of that Kansas flour, and I guess he did, you said that you had from the Lukens Milling Company? A. Yes, sir.

826 Q. And you don't know whether that is bleached or not. You said it was not satisfactory?

A. I don't think it was bleached, but if it was, why, we only used a small portion of it any way.

Q. But whether the defect in it was [bout] the bleaching or not you don't know? A. No, we don't know that.

Redirect Examination

By Mr. Butler:

Q. What was the name of the mill at Flint, Michigan?

A. The Dakota Milling Company.

Q. And in Indianapolis the Evans is the Acme Milling Company?

A. Well, it is now the Acme; it was then the George T. Evans & Son.

Q. And Jennison is the man in Minnesota at Appleton?

A. W. J. Jennison.

John E. Mitchell Recalled as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Mitchell, do you happen to know the mill referred to by Mr. Taggart, the last witness, at Indianapolis?

A. I know of them.

Q. Do you know Mr. Evans? A. Yes, sir.

Q. Do you know Mr. Evans? A. Yes, sir.

Q. Is he a stockholder in your Company? A. No, sir.

Q. Is the Mill Company?

A. He is a stockholder in the American Company, Mr. Butler, the same as Mr. Ballard.

Q. What bleacher does he use in his mill?

A. The American.

Q. The American, the electrical process? A. Yes, sir.

Q. How long has he been using that?

A. Well, I couldn't tell, I don't remember.

827 Q. That is controlled by you or your concern?

A. It is now.

Q. And employs electricity, doesn't it?

A. Practically the same as the Alsop process, yes sir.

Q. The same medium is used?

A. Just a difference in the mechanism for making the flame, that is all.

Q. But the same old NO₂ is employed, isn't it, that makes that air?

A. I would not know NO₂, I am not a chemist.

By the Court:

Q. By that I suppose you mean you know nothing about this chemical expression?

A. I will explain what I do, then I will satisfy Mr. Butler, I think, on that.

Mr. Smith: I think he ought to be permitted to do that.

Mr. Butler: Just wait a moment, Mr. Mitchell.

Q. Mr. Mitchell, I will ask you whether or not you do not know that nitrogen peroxide gas is used by the Alsop process and also by the American process, and also by the Williams process, and also by the Naylor & Gerard process?

A. I know that some of the best chemists in the country tell me that the nitrogen—

Q. Wait a moment. I am not asking what the chemists know; we have them here?

A. Well, I couldn't tell, I can't analyze those gases.

By the Court:

Q. He is asking if you know that the nitrogen peroxide is a result of those things, processes?

A. Well, I would say, Your Honor, that I know as far as a man can know from what those chemists tell me, and I am perfectly satisfied that it does, I could not analyze the gas.

Q. You believe it does? A. I do, yes sir.

Q. And as the owner of the Alsop process you contend and claim that any one else who employs NO₂ to bleach flour infringes that process? A. No, sir, I do not.

Mr. Smith: I object to that as wholly irrelevant in this case; we are not trying the nitrogen case.

828 The Court: Oh, I think that is right, it goes out.

Q. Now wait a moment, what did Jennison use up in Minnesota?

A. Why, we have a list there that we can—

Q. Well, if you could to refresh your memory?

A. I can not recall right now.

Q. Refresh your memory from your list?

A. Mr. Elliott, I think you have a list there, have you not? (Mr. Elliott hands list to witness). Where is he, Minnesota?

Q. Yes, at Appleton in Minnesota, W. B. Jennison & Company, or W. J. Jennison.

A. W. J. Jennison & Company, Appleton, Minnesota.

Q. Yes. A. They have the Alsop process.

Q. How long have they had that?

A. Well, this record does not show and I couldn't tell you that.

Q. As far as you know they never had another?

A. What do you mean?

Q. As far as you know or ever heard they never had any other than the Alsop? A. Not that I know of, no sir.

Q. Now how about this Mill in Flint, Michigan, called the Genessee Milling Company that Mr. Taggart got his flour from? A. Flint, Michigan?

Q. Genessee Milling Company I think is the name he gave?

A. I don't find any by that name.

By Mr. Butler: What was that, Mr. Taggart, did I misunderstand you?

Mr. Taggart: Genessee Mills, I think.

Q. Do you know the names of the gentlemen connected with it?

Mr. Taggart: No, I do not.

By Mr. Butler: (resuming)—

Q. Have you any mills at Flint, Michigan?

A. Flint is not even on the list—Yes, J. B. Burris & Son, Flint.

Mr. Smith: I object to that as immaterial, irrelevant and incompetent.

A. We adopted a standard flour of soft winter wheat here in St. Louis in 1882, we call it patent, extra fancy, fancy and choice; we have no standards patents of anything else excepting soft red winter flours.

Judge Scarritt: I object to this as incompetent, irrelevant and immaterial and move that it be stricken out.

The Court: What was it he said, you will have to speak out, I didn't hear all.

Mr. Smith: I am objecting now. He is telling what we have done in the establishment of a standard at St. Louis, as incompetent, irrelevant and immaterial.

Mr. Butler: I don't care anything about formalities of establishing a standard. I think it is proper evidence to show what kind of flour is known in the markets of St. Louis.

Mr. Smith: That is not what he is proceeding to detail.

The Court: I don't see how that would be binding on anybody list of the standards fixed in St. Louis.

Mr. Butler: Any formal fixing of it, but I think what is known generally in the market any place in the country would be competent evidence as to whether or not this is a patent flour as known in the markets of the country.

The Court: Well, go on; I don't see how that can be binding in St. Louis.

To which ruling of the court claimant then and there duly excepted.

Q. I did not intend to ask, Mr. Albrecht, for any action of any organization or anything of that sort. What I am trying to get at is this, whether or not you know the various
831 kinds of flour which are recognized generally in the flour market in commerce in St. Louis and this part of the country as patent flours? A. I do.

Q. Well, now, what is a patent flour as recognized in the market of flour commerce in this part of the country?

A. From 65 to 75 per cent the best part of the wheat.

Q. Of the best part of the wheat?

A. Of the wheat, yes, sir.

Q. And what do you mean, you say the best part of the wheat?

A. That is the middlings that they get out of the kernel of wheat and part of the break flour, that is separate, the balance they run into what they call extra fancy flours or low grades, some call it red dog, the lowest part of it.

Q. Now as to the percentage including again patents, does that differ with the different kinds of wheat, that is, a light percentage in case of the soft wheats of southern Missouri and the territory east of that along the Ohio River, from that in Kansas and Nebraska, in the winter wheat, hard wheat territory and the spring hard wheat territory further north?

A. Yes, sir, it does vary in percentage.

Q. Now give us the variation in percentage?

A. The soft wheat Missouri and Illinois wheat or Tennessee wheat or Indiana wheat, they generally get from 65 to 75 percent out as the patent.

Q. Yes, sir.

A. The hard wheats however, they can stretch that, make it from 70 to 80 per cent, that is both Minnesota, also Kansas.

Q. And how about Nebraska?

A. Well, that does not go quite so far as the Kansas.

[Q. And how about Nebraska?

A. Well, that does not go quite so far as the Kansas.].

Q. The flour seized in this case is said by the miller who testified—

Judge Scarritt: We object to commenting on what the miller testified if your Honor please.

Mr. Butler: I am not going to comment on it. I was just going to state what he said and ask the opinion of the
832 witness on that assumption.

Judge Scarritt: We object to his statement as an improper direct examination.

The Court: Well, just a moment. We can not ask questions or we will never get through in the world. I am not working by the day. My understanding is it is always right and allowable to put into the form of the question of an expert, assuming so and so and so and so.

Mr. Butler: That was my purpose in the question when interrupted.

Q. Assuming that the testimony was to the effect that the flour seized in this case is 90 per cent to the flour contents of the wheat at which it is milled is true in point of fact, that was made in Nebraska from turkey hard wheat in which, the testimony also states, that there was from 10 to 30 per cent yellow part; assume that to be true, then I ask you whether or not the flour in question is a fancy patent flour?

A. No, sir.

Judge Scarritt: I move to strike that out, if your Honor please, not the proper evidence in this case, because there is no no standard fixed as to what is a fancy patent flour.

The court overruled the objection, to which ruling of the court claimant then and there duly excepted.

Q. Are you familiar with bleached flour?

A. Somewhat, yes sir, had experience with it.

Q. What experience have you had with it?

A. A very sorrowful one.

Mr. Smith: I move to strike that out as wholly improper.

The Court: That is stricken out. He asked you what your experience is, didn't ask you for a declamation.

A. All right, I have had experience.

By Mr. Butler:

Q. Now you may tell us what the extent of your experience is with bleached flour?

A. In 1907, the latter part, well, it was the middle of July, we bought out the Eggers Milling Company, business at
833 the city of St. Louis. They had a big stock of flour all in cotton sacks that is, that was sold in the city trade to the family trade. They told me—

Mr. Smith: I object to this as hearsay, incompetent, irrelevant and immaterial.

The Court: He asked what experience you had.

A. We bought the flour as a bleached flour, they sold it to us as a bleached flour, it was branded H. B. Eggers Milling Company "Good Luck" patent. We sold that flour in the city of St. Louis to I don't know how many different grocery men, may be a hundred or two hundred, and about six weeks after we began to get complaints.

Mr. Smith: I object to this as wholly incompetent, irrelevant and immaterial.

The court sustained the objection.

A. We received complaints from—

Mr. Smith: No, no, he sustained the objection.

By Mr. Butler (resuming)

Q. It is not proper to tell what others said to you about it. Did you yourself see the flour when you bought it?

A. I have, yes, sir.

Q. And how did it appear to be?

A. It appeared to be a soft wheat patent flour in the face; in the face it looked like a soft wheat patent flour.

Q. Yes. Now after you bought it and after you sold it, did you have occasion again to examine some of it?

A. Yes, sir, I took some of it home myself.

Q. Yes, from this very same flour?

A. The very same.

Q. How much was it you purchased?

A. I bought a patent flour.

Q. How much of it?

A. Oh may be 2400 or 2500 packages all the way from 8 pounds up to 98 pounds.

Q. Now you took home some of this flour that appeared to be a soft wheat patent? A. Yes, sir.

Q. Did you use it?

A. That is we baked it, that is my wife did.

834 Q. Did you observe it worked in the bread and so forth? A. Yes, sir.

Q. You may describe that?

A. Well, the bread that we got out of that flour was a dark gray looking bread and if you took a bite or two you had all the bread that you wanted of that very same baking, and my wife and children—

Mr. Smith: I object to detailing what his wife and children said or did as immaterial, hearsay.

Q. Eat some of it?

A. They tried to, didn't eat much, though.

Q. Well, by the way, how did that flour look?

A. It looked white like our standard.

Q. Now as to the color of the flour as compared with the color of a good patent flour?

A. Oh, it had a kind of a dead white color.

Q. Yes, now, the color of the bread was you say dark gray?

A. Dark gray.

Q. And how did the color of the bread compare with the color of bread made from an unbleached flour of the quality that this same looks?

A. The unbleached flour bread is entirely—is much better.

Counsel for claimant moved to strike that out as not responsive and the opinion of the witness.

The Court: He did not ask you that. It will be stricken out.

A. The color of the unbleached flour bread is creamier, that is white it has not got that dead gray color.

Q. Now as to which was the whiter, leaving out of consideration the element of creaminess, the bleached flour or the unbleached flour?

A. The unbleached is the whitest.

Q. Now have you from time to time observed other bleached flour? A. I have.

Q. In the market, to what extent.

A. Well, looked at them as they came along to be sold in St. Louis.

Q. Well, how frequently?

A. Oh, sometimes three or four times a week.

835 Q. And during what period of time?

A. Well, up till 1909.

Q. Now Mr. Albrecht in the absence of any bleaching at all, what effect if any, what force, if any, has the color of flour as [as] indicating the quality of the bleached?

A. You mean unbleached.

Q. Yes.

A. Well, you can distinguish the different grades very readily, if you take an unbleached patent or an unbleached 90 per cent flour, or an unbleached extra fancy, as some call it, clear, and the unbleached low grade of 1 to 5 per cent flour, you can distinguish the color very easily; it does not take much of an expert to tell that.

Q. Can you tell the grade of quality by the color?

A. We can, yes.

Q. What is the effect if the flours be bleached?

A. Then you are up against it.

Q. You mean you can or can not tell?

A. You can not tell.

Q. Now are you familiar with the effect of aging unbleached flour? A. Yes, sir.

Q. What is that effect upon color and quality?

A. You take a fresh flour and lay in the warehouse for 30 days you will find it a lighter color, in 40 days a little more, 60 days still a little more, up till about, well four or five months, then it stops from bleaching further.

Q. And how does that color so acquired in the storing compare with the color of bleaching made by bleaching?

A. Well, it always has a yellow creamy color, to it, whereas bleached flour has a dead color a different white.

Q. Now do you know whether or not flour that has been bleached improves in the same way you have described or told?

A. I do.

Q. Or does the— A. It does not improve.

Q. Does it change?

A. No, it stays just as the way it originally is, it is bleached.

Cross-Examination

By Mr. Smith:

Q. What is your business?

A. Flour merchant, buy and sell flour.

836 By Mr. Butler:

Q. I want to inquire on another subject. Are you familiar with the color of flour made from the hard winter wheats? A. I am.

Q. And not bleached, and of the turkey hard wheat of Nebraska. A. I am.

Q. And Kansas? A. I am.

Q. Winter hards and the spring hard wheats further north? A. I am.

Q. Which makes the whiter flour of light grades?

A. The soft winter wheat flours are the whitest.

Q. And the next?

A. Next comes the Kansas dark hard wheat flour.

Q. And the next?

A. Comes the Minnesota and Dakotas.

Q. Now as to the strength of the flour, do you know about that? A. I do.

Q. The baking strength, the strength of the dough?

A. I do.

Q. Which is the strongest?

A. The Minnesotas and Dakotas.

Q. And the next? A. The Kansas turkey hard.

Q. And the next?

A. Nebraska, and then the soft wheat.

Q. The color, the flours having the lightest color, are the weakest in strength? A. Yes, sir.

By Mr. Smith: (resuming)

Q. You are a flour merchant? A. I am.

Q. Have you been a miller? A. No, sir.

Q. What was this business that you bought out there in St. Louis, what was that?

A. It was the H. B. Eggers Mill Company's business, that is, they quit making flour in the city of St. Louis and I bought their flour.

Q. You didn't buy their mill? A. Oh no.

Q. Were they millers? A. They were.

Q. You did not go in the milling business? A. No, sir.

Q. This was a bankrupt stock of flour you were buying?

A. No, sir, it was not.

Q. How much did you buy?

837 A. About twenty-three or twenty-four hundred packages.

Q. By that you mean sacks?

A. Sacks for 8 pounds up to 98 pounds.

Q. I see, and when was that?

A. In 1907, in June or July, in July 1907.

Q. And they were going out of business?

A. They were, yes, sir.

Q. Was it sold at sheriff's sale? A. No, sir.

Q. You never did run a mill?

A. I had charge of a mill at one time.

Q. When was that? A. In 1889 and 1890.

Q. Where? A. Rolla, Missouri.

Q. How long? A. For about a year and a half.

Q. Did you bleach flour? A. No, sir.

Q. Now can you tell by examining patent flour the per cent?

A. Unbleached we can, yes.

Q. You can tell by an examination of patent flour the per cent of the actual flour that has been run into that patent?

A. About yes within 5 or 10 per cent.

Q. Can you? A. Yes, sir.

Q. Haven't any here now but [but] this afternoon I want you to tell this jury something about the per cent of some flours? A. All right, I will be here.

Q. Are there different kinds of patent flour?

A. Soft wheat is only one kind.

Q. Well, but no different mills have a different per cent in patent? A. They have.

Q. Made from the same kind of wheat? A. Yes, sir.

Q. Do you know of any two mills that make the same?

A. Not exactly, no.

Q. Well, does each miller regulate that to suit himself?

A. According to the class of wheat he grinds.

Q. I see, it depends somewhat on the miller, don't it?

A. Oh yes, sure.

Q. It depends somewhat on the equipment of his mill?

A. Certainly.

838 Q. And the kind of wheat he is grinding?

A. Certainly.

Q. Now in your trade do you have different brands of patent flour?

A. No, sir, we only have one kind of patent flour.

Q. Don't different mills make a different grade of patent flour.

A. All we know patent is a patent flour; we don't call it high patent or low patent.

Q. In your experience haven't you learned that millers in putting out their flour will have one that they call a certain kind of patent and another, another kind of patent and so on? A. Oh yes, sir.

Q. Coming from the same mill? A. Yes, sir.

Q. Now what does that mean in the trade?

A. Well, one means 50 per cent patent and another one 65 per cent patent, and another one 70 per cent, patent, some 80 per cent patent, some call their 90 per cent flour a patent.

- Q. Do they do that? A. Some of them, yes.
[A.] In St. Louis? A. In St. Louis, no.
Q. Where do they do that, in Nebraska?
A. Kansas and Nebraska and Minnesota.
Q. Any place else? A. Minnesota too.
Q. Does Minnesota put out a 90 per cent patent?
A. They call it such.
Q. Do they? A. Yes, sir.
Q. It goes on the market as such? A. Yes.
Q. Do you ever handle any of them?
A. I have. I sold it just what I bought it, 90 per cent patent flour.
Q. Do you sell that to your trade 90 per cent patent?
A. As a 90 per cent patent I sold it.
Q. And you actually sold to your trade then 90 per cent patent flour? A. I sold them a 90 per cent patent.
Q. And where did that come from? A. From Minnesota.
Q. Well, did you tell any of your trade that it was not a patent flour in fact?
A. I told them it was a 90 per cent patent.
839 Q. Well was it branded as such?
A. It was not branded at all.
Q. But you sold it as such did you? A. I did, yes.
Q. You sold it as a 90 per cent patent flour?
A. Yes, sir.
Q. And it was not branded patent at all? A. No, sir.
Q. Well, what made you call it 90 per cent patent?
A. Because the miller told me so.
Q. And you passed it on to your trade as a 90 per cent patent? A. I did, yes sir.
Q. Now what other per cent of patents have you sold?
A. 65 per cent soft wheats.
Q. Any other? A. Oh yes, 70 per cent.
Q. Any other? A. 75 per cents.
Q. 80? A. Not soft wheats, no.
Q. Hard? A. Yes, sir.
Q. 85? A. Yes.
Q. 90? A. Yes.
Q. Hard? A. Hard.
Q. So you in your experience have handled patent flours and sold them to the market for first patent flours that was 75, 80 and 95 per cent?
A. It is according to the way the miller sold to me; I sold to the trade again.
Q. You passed it on to the trade again? A. Yes.
Q. And you never said to any of your trade it is not a patent flour?

A. I told them this is 85 or a 90 per cent patent or a 75 per cent patent.

Q. You always told them the per cent? A. I did, yes.

Q. How did you know the per cent?

A. From what they told me..

Q. But it did not go on the market as a straight or a clear flour did it? A. No, sir.

Q. It went on the market as a patent flour?

A. It did, yes.

Q. Now were those sacks branded?

A. What we sell to the bakers' trade we have no brand on them at all.

Q. I am not asking what you sell to the bakers trade;
S40 I am asking about this you sold as a 85 or a 90 per cent patent?

A. For the family trade we didn't sell any of those patents; we sold 65 to 75 per cent soft winter wheat patent.

Q. The other you sell to the bakers? A. Yes, sir.

Q. Did they buy that? A. Of course they did.

Q. Is that the kind of flour that bakers in your town usually have? A. They buy all kinds of flour.

Q. The bakers then buy from 75 to 90 per cent, didn't they? A. They do.

Q. And you sell it to them? A. We do, yes.

Q. Now you don't know of any standard that has been fixed by the State of Missouri showing what patent flour is, do you?

A. No, sir.

Q. There isn't any, is there? A. No, sir.

Q. You don't know of any standard fixed by the government or by any of its officers, or any of its representatives fixing the standard flour? A. No.

Q. But you do know in your experience you buy and sell a patent flour as high as 90 per cent haven't you?

A. Yes, sir.

Q. Now you don't consider anything wrong about that, do you? A. No, sir.

Q. Now this flour which you bought that was bleached, as you say, was that the only experience you had in the purchase and sale of bleached flour?

A. Up to that time, yes, sir.

Q. Up to that time. Now when you took this and baked it into bread the taste was exceedingly disagreeable, wasn't it?

A. It was.

Q. Very nauseating, wasn't it?

A. Well, it was so that you didn't want to eat any more of it.

Q. Yes, as you take it into your mouth you would spit it out, wouldn't you?

A. No, you swallow a little bit of it but you would not repeat the same dose.

Q. You would get up and leave the table?

A. No, keep sitting there and eat something else.

841 Q. What I want to get at now was the taste there was so offensive and so marked that anybody eating that bread could tell it?

A. Sure my children could tell and they did tell it too.

Q. Could you tell by the looks of the bread? A. No, sir.

Q. What was the peculiar taste?

A. Oh, it was a kind of a rancid, didn't have that—

Q. Kind of taste like rancid butter?

A. Somewhat like it, yes.

Q. Now is that as well as you can describe it; is that as near a comparison as you can make?

A. Well, it didn't have that nutty flavor.

Q. But now it had the rancid taste like rancid butter?

A. Yes, sir.

Q. That is as near as you can describe it? A. Yes.

Q. And that was so painfully noticeable that anybody could tell that, could they? A. Yes, sir.

Q. Now that bleached flour was just about the same as any other bleached flour that you ever saw, ain't it? A. Yes.

Q. Did you ever have any bread made from any other bleached flour? A. No, sir.

Q. Is that the only bleached flour you ever tasted?

A. Yes, sir, because my wife would not have any more in the house.

Q. And you never tasted it any place?

A. No, not that I know of.

Q. Did you ever run across the taste in any other place where you ate bread? A. No, sir.

Q. Where do you stop here in town?

A. I am stopping over at the Baltimore.

Q. Did you ever eat any bread over there? A. Sure.

Q. Did you ever get that rancid taste over there?

A. No, sir.

Q. Is their bread over there all right?

A. Pretty fair, yes, pretty good.

Q. Fine? A. Not as good as we can bake it at home.

Q. No, I suppose not, there ain't any of these hotels get as good cooking as we get at home; what do you say about the bread at the Baltimore Hotel, do you say that is bleached or unbleached?

842 A. I couldn't tell about that.

Q. Can't tell by the taste of it whether it is or not?

A. It has not got that same flavor of bread that we bake at home.

Q. No, but it has not got that same flavor of this bleached flour that you had at home? A. No.

Q. Can you tell by the taste of it whether or not it is bleached flour? A. Well, to a certain extent.

Q. Well, this that you got at the Baltimore, what do you say about it? A. Oh, it is good bread.

Q. That is all right, is it? A. Yes.

Q. You could not find any fault with that at all? A. No.

Q. And from your ability to detect the taste of flours and taste of bread you would say that the bread served to you at the Baltimore Hotel is all right? A. Oh, yes.

Q. Now this flour which you bought from your party there that you bought out, what was the name of it?

A. "Good Luck" patent, H. B. Eggers Mill Company, Good Luck brand.

Q. Had you ever handled that flour before in your business? A. No.

Q. You never had sold any of it to the different people?

A. No.

Q. So you don't know anything about what had been the experience of that flour on the market before, never heard anything of it?

A. Oh, it always used to have a run in St. Louis.

Q. As pretty good flour? A. Yes.

Q. But you never sold any of it?

A. Not up to that time.

Q. Have you ever handled and do you now handle any Kansas flours? A. We do, yes.

Q. Where do you get it? A. Lyons, Kansas.

Q. What company? A. Lyons Milling Company.

Q. Lyons Milling Company of Kansas?

A. Lyons, Kansas.

Q. Who else in Kansas City?

A. Oh, I buy from the Kansas Mill and Export
843 Company.

Q. Where are they located?

A. Well, they are right here in the city, they are flour brokers.

Q. Is that a mill? A. No, they are flour brokers.

Q. Well, whose flour do you handle that come from Kansas besides this Lyons?

A. Well, the Mound Ridge Flour, Mound Ridge, Kansas.

Q. Where is that made? A. In Kansas.

Q. Whereabouts?

A. I don't know where the place is.

Q. Well, is this the name of the flour or the name of the place? A. It is the name of the place.

Q. What is the name of the flour?

A. We buy it unbranded, buy it as 90, 95 per cent. Kansas.

Q. The what? A. Kansas flour.

Q. How do you have it branded?

A. We call it Kansas; we put a tag on the sack when we deliver it to the baker.

Q. Oh, this is baker's flour, is it. A. Yes.

Q. Is it 95 per cent? A. I don't know.

Q. Do you sell it as such?

A. We buy it for 90, 95 per cent flour.

Q. Patent of 90 or 95 straight, or 90, or 95 per cent clear, which is it? A. It is not the clear.

Q. Is it straight? A. Straight, yes.

Q. Or is it patent? A. Yes.

Q. Well, now do you know whether that is bleached or not? A. I do.

Q. Is it? A. It is not bleached.

Q. Unbleached. And that is made at Mound Ridge, is it?

A. Yes, sir.

Q. Put up in sacks especially for you?

A. No, in 40 pound sacks, that they put it in for our special purpose.

Q. You don't buy direct from the mill but from a broker here? A. Yes, sir.

A. Yes, sir.

Q. Now from Lyons, what is the name of that?

A. They call it "Telegram" which we get in unbranded jutes.

844 Q. In unbranded sacks? A. Sacks, yes.

Q. Why do you get it that way?

A. In unbranded jutes?

Q. Yes.

A. Because we have to take back a great many of the empty sacks from the bakers and we can always get a little more money for the unbranded jutes than for the branded jutes.

Q. Is that bleached or unbleached?

A. It is unbleached.

Q. How do you know?

A. Because I have tried it several times.

Q. In what way have you tried it?

A. Well, with this acid.

Q. And it does not react? A. No, sir, does not show any.

Q. By the Griess test? A. Does not show any.

Q. Does not show any? A. No.

Q. Now this flour that you purchased, how long had it been standing in the mill, do you know?

- A. Which, the Good Luck, the Eggers mill?
- Q. Yes, the Good Luck?
- A. I don't know, may be three or four weeks.
- Q. The company then went out of business, did they?
- A. They did, yes.
- Q. Who operated the mill after?
- A. Nobody, they quit; they dismantled the mill.
- Q. I guess that is all.

Redirect Examination

By Mr. Butler:

Q. Do you belong to any organization or associations of flour merchants?

A. I am a member of the Merchants Exchange, and I am one of the Flour Committee. The president of the exchange, he appoints seven men, flour men, millers and flour merchants to act as a committee on flour.

Q. That is the Flour Exchange at St. Louis?

A. Yes, sir.

Q. And this committee has to do with what—the standards?

A. With standards, yes, sir.

Q. And qualities and grades? A. Yes, sir.

Mr. Smith: I want the witness to return after the noon recess for further cross-examination.

The Court: You may return here at the convening of court at 2 o'clock.

Arthur C. Comstock, recalled as a witness on the part of the libelant further testified:

Direct Examination

By Mr. Butler:

Q. Mr. Comstock, you called my attention to some matter that you desire to correct and made in cross-examination?

A. Yes, in regard to the question that was asked that if all flour coming from our mill was labeled bleached.

Q. You mean patent, don't you?

A. Yes, was labeled patent. I did not so understand the question, and in looking over the transcript of the testimony I see that the answer is yes, to that question, and will say that that was an error on my part. This part of our flour that goes out in plain sacks with no marking or labeling whatever on it, and I wanted to be clear on this subject and make this correction, that is all.

Q. It is true, however, is it, as you answered to Mr. Smith that every kind of flour except the red dog or low grade, that is the patent and the clears and the straights then have gone out in bags? A. They have.

Q. As you described?

A. In time past, yes sir, but for the past, well this year, I can not recall any sale that has been made on these two lower grades of flour that have gone out in sacks that have been labeled patent.

Q. So the distinction you desire to make is simply this that some goes out unbranded or unlabeled?

A. Yes, sir, I make it, again.

Q. In jute sacks? A. In jute and 98 cotton, yes, sir.

Cross-Examination

By Mr. Smith:

846 Q. Well, that would include patent flour as well as low grades some of your patent flour goes out without being labeled at all, is that right?

A. Well, no, there is none of our patent and straight and clear.

Q. You don't say what it is? A. No, sir.

Q. But it is true that for years you labeled all three grades of your flour as a patent flour?

A. Some of it, yes, sir.

Q. Some of it, yes, sir. A. A small per cent.

Q. What you call your highest? A. High patent.

Q. And the straight you call the straight patent?

A. Yes, sir.

Q. And so brand it? A. Yes, sir.

Q. And your clears you labeled it clear patent and so branded it?

A. In time past, yes, sir, there is some of it that went out in that way.

Q. How many years did that continue?

A. I can't recall any time that we have put out our clear in that form for the past two years.

Q. How many years did you before that?

A. Well, I don't know that, they were doing that at the time I went to this mill six years ago.

Q. And you continued it for four years any how?

A. Well, off and on, yes, sir.

Q. This that went out unbranded was in jute sacks, was it?

A. Part of it was in jute sacks and part of it in 98 cotton.

Q. Well, what are these jute sacks, what are they intended for exportation?

A. That is the clear flour, yes, sir, and where the straight goes in jutes to bakers west in Utah.

Q. That which you intended for export you put in jute sacks and didn't say what it was, is that it?

A. No, sir, it was not labeled at all.

Q. It was not labeled at all? A. No, sir.

Q. And some of this which you sold to bakers you did not label at all? A. No, sir.

Q. But that which you intended for family trade and which went to the retail grocers was labeled either high
847 patent or fancy, which was it?

A. It was the word "patent" on a part of it.

Q. It was on all of the sacks which went to the retail grocers? A. Well, no, I don't think it was on all the sacks.

Q. But it was on most of them, wasn't it?

A. No, it was on some of them.

Q. Even that which was patent to the clear patent that went to the grocers, didn't it?

A. I don't remember now just where it all went but there is some of it did, yes, sir.

At this point Court took a recess until 2 o'clock p. m.

Afternoon Session, Friday, June 10, 1910.

Pursuant to adjournment, court met at two o'clock p. m. Friday, June 10, 1910, and proceeded with the trial of said cause, further, as follows:

Victor Albrecht, being recalled was cross-examined by Mr. Smith, and testified further as follows:

Q. Mr. Witness, in your experience in the flour trade, you have become reasonably familiar with the different grades of patent flour, that are sold, have you? A. Yes, sir.

Q. Do you know anything about the "U. S. Standard" patent? A. I do.

Q. What per cent is that?

A. That is a sixty-five per cent.

Q. Where is it made? A. In East St. Louis.

Q. Do you know anything about the "Hiawatha" patent? A. "Hiawatha"?

Q. Yes, "Hiawatha".

A. I have handled same of that flour, some years ago.

Q. Where did it come from? A. Hiawatha, Kansas.

Q. What was it?

A. I bought it as a Kansas patent flour.

Q. Well, do you know the per cent? A. No, I do not.

Q. "Lexington Cream", do you know anything about that?

A. No, sir.

Q. "Puritan"?

A. No, sir, I don't know anything about that.

Q. "White Rose", do you know anything about that?

A. No, sir.

Q. "Ermine" A. No, sir.

Q. Do you know any brands, that are sold on the market, as "Highest Patent"? A. As "Highest Patent".

Q. Yes. A. You mean, soft or hard?

Q. Both.

A. Yes, I know there is a Kansas hard wheat patent, that I have sold a few cars of, made here in Kansas City.

Q. Do you know what per cent patent it was?

A. They told me fifty per cent.

Q. Did you ever handle any flour made by the Bulte Milling Company, here in Kansas City?

A. Yes, sir. That is the very flour I have reference to.

Q. What is its patent? A. Fifty per cent.

Q. You have handled some of its flour, have you?

A. I have.

Q. Bleached or unbleached? A. Unbleached.

Q. Now, when you purchased flour, you examined the flour by inspection—looking at it, and feeling of it, to determine the quality? A. I looked at it, compared it with another flour.

Q. You can tell, simply by the granulation, can you?

A. Yes, and by doughing them up.

Q. You can tell, by looking and feeling and doughing them up, whether it is a patent, and if so what per cent?

A. Pretty close.

Q. And whether it is bleached or unbleached?

849 A. Well, by comparing the bleached with unbleached, yes.

Q. Well, suppose you don't know whether one of them is a bleached or unbleached, can you tell by the looks?

A. When they don't say anything about it?

Q. Yes. A. Not very well, no.

Q. If a traveling salesman came to you, and submitted a flour, and said "Here is the kind of flour I want to sell you", could you tell whether it was bleached or unbleached?

A. Only by comparing it with a bleached flour, or another unbleached.

Q. From the same or some other mill? A. Other mill.

Q. Other mill? A. Yes.

Q. But you can tell, by feeling it, whether it is a patent flour, and what per cent?

A. By comparing it with another flour.

Q. Now, I hand you three samples, here, that have been marked "Claimant's Exhibit 207", "206", and "209". I wish you would look at those.

A. I can't compare them, unless I have my samples to compare by.

Q. Can't you look at those flours, and tell the jury whether or not they are patent, straight or clear?

A. Not here, no.

Q. And tell them what per cent it is? A. No, not here.

Q. Can you compare the flours with each other, and tell them which is the best, and which is the poorest?

A. Not here, no.

Q. Can you tell me whether one is bleached, or unbleached, by looking at it? A. No, not here.

Q. Can you tell which is the superior flour, by looking at them? A. No, not here.

Q. Can you look at those three samples, Defendant's Exhibit 206, 207, and 209, and tell the jury whether or not they are patent, or clear? A. Not here.

Q. Can you tell them whether they are straight, or clear?

A. Not here.

Q. Can you tell whether either of them is a patent flour?

A. No, not here.

Q. Can you tell whether either of them is a bleached flour?

850 A. Not here.

Q. Where could you? A. In St. Louis.

Q. Well, unfortunately, we can't take them down there.

Mr. Smith: I guess that is all.

Redirect Examination

By Mr. Butler:

Q. How would you do that in St. Louis? Describe that to us.

A. We have a room there, where we are accustomed to our light, and we have other flours, that we use as a guide, and we compare [then] with the samples that are mailed to us. We are accustomed to that light, better than any other light. I am not used to this light here.

Q. Does that involve doughing them up, too?

A. Well, not exactly. It does, to a measure, yes, because it gives me the color of the flour.

Q. Have you any tests for bleached flour? A. Yes, sir.

Q. What is that? A. We use this here dropper—this acid.

Q. The Griess test, they call it? A. Which?

Q. The Griess-Illsvooy test? A. Yes, this government—

Q. (interrupting) How do you use that?

A. We just drop it—take the flours, bleached and unbleached, and smooth them down, put them together, and drop these drops on them.

Q. What colors are the drops?

A. The bleached will always come out pink.

Q. What is the color of the drops you put on the flour?

A. It is a white.

Q. White, or clear?

A. It is a clear color—very clear.

Q. And it turns pink on bleached? A. Yes, sir.

Q. How does it turn on unbleached?

A. It has no effect whatsoever.

Q. Have you doughed up many specimens of bleached flour?

A. I have.

Q. How does that dough up?

851 A. They dough up kind of short. They haven't got the strength, as the unbleached flour has.

Recross Examination

By Mr. Smith:

Q. Can you dough these up, and tell us whether they are bleached or not?

A. No, sir, I can't here, I told you before.

Q. You could in St. Louis? A. Yes, sir.

Q. This flour that you bought from this W. J. Jennison Company, going out of business,—how many years had they been running? A. In St. Louis?

Q. Yes.

A. Oh, they were running there, I guess, some twenty odd years, or more.

Q. And this you bought was the tailings, or clean-up, at the end of a twenty-year run?

A. No, sir. It was not the tailings or clean-up. It was a regular run of flour they had made for the regular city business, for their regular trade.

Q. It was the last they had made in the mill?

A. It was the last they had made. They made it for the city trade.

Q. When you got these sacks out of there, there wasn't any more flour left in the mill?

A. Yes. They had some flour in there in jute sacks, left.

Q. They had some in jute sacks? They didn't have any flour except what was left in jute sacks?

A. They had some in jute sacks, some in barrels, and some in half barrels.

Q. But you bought all that was in there, branded, didn't you? A. I bought the "Good Luck" patent.

Q. Now, the "Good Luck" had been sold in St. Louis for many years? A. Since about 1882.

Q. It was a big flour, there?

A. Yes, sir, they had a big run. Big reputation.

Q. One of the best flours in St. Louis, wasn't it?

A. Yes, sir, it was at one time.

Q. And had been up to that time, had it not?

A. No, they were having trouble before.

852 Q. How long before?

A. Oh, for quite a little while.

Q. How long? A. Oh, for about a year.

Q. About a year? A. Yes, sir.

Redirect Examination

By Mr. Butler:

Q. Were they bleaching during that year? A. Yes, sir.

Q. Is that "Good Luck" patent still sold in the market in St. Louis? A. Yes, sir.

Q. Do you still sell it? A. We are, yes, sir.

Q. This particular mill was dismantled, and pulled down?

A. Yes.

Q. But they moved out to another place?

A. They have a mill at Harmon, Missouri, also.

Q. Still making the same brand? A. Yes, sir.

Q. Are they bleaching it? A. No, sir.

Q. What kind of flour is it, now?

A. It is all right. Have no trouble with it. It has given satisfaction wherever it goes.

Q. One of the best quality flours, and one of the best flours in the market down there? A. Yes, sir.

Q. So, as I get the idea, this "Good Luck," patent, was one of the best known and satisfactory flours in St. Louis, before they commenced bleaching it? A. Yes, sir.

Q. And they have stopped bleaching? A. Yes, sir.

Q. And you got some while they were bleaching?

A. Yes, sir.

[A]. And you have told us about that? A. Yes, sir.

Recross Examination

By Mr. Smith:

Q. How long did they bleach?

A. How long did they bleach?

Q. Yes, how many years did they bleach "Good Luck" flour?

A. How many years? To my best knowledge, about two or three years.

853 Q. Well, do you know anything about that?

A. Only from what they have told me.

Q. Don't you know they bleached it for more than five years?

A. No, I don't know.

Witness excused.

Dr. John Marshall, called as a witness on behalf of the government, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Butler:

Q. Your name is Marshall? A. John Marshall.

Q. Where do you reside? A. Philadelphia.

Q. And your occupation, Doctor?

A. Professor of Chemistry in the University of Pennsylvania.

Q. What particular kind of chemistry,—generally?

A. Teach general chemistry, and physiological chemistry.

Q. What has been your professional education, experience, and special work, if any? I would like to have you state your qualifications, quite fully.

A. I received my academic and scientific education at Pennsylvania College, at Gettysburg, Pennsylvania. I studied medicine at the University of Pennsylvania, and was graduated as Doctor of Medicine in the University of Pennsylvania, and, subsequently, studied physiological chemistry at the University of Tuebingen, Germany, and was graduated there with the degree of Doctor of Natural Science. I have been teaching chemistry in the Medical School of the University of Pennsylvania for the past thirty years.

Q. Now, how old is the College of Medicine in that University?

A. It was established, I think, in 1740. It was the first medical school that was established in the United States.

Q. And as to its size, compared with the other leading medical colleges?

A. Oh, I should say that it compares favorably with the other medical schools of like rank, in the United States.

Q. And you have taught in that college for how long?

A. About thirty years.

Q. Have you had to do with the teaching of toxicology, and the study of it? A. Yes.

Q. You have pursued original investigations, during that time, too? A. Yes.

Q. Along the lines of your profession? A. Yes.

Q. Have you, or have you not, made any special study of the subject of bleached flour, or the bleaching of flour by nitrogen peroxide?

A. I have made no special study.

Q. Made no examinations or analyses? A. No.

Q. And you have not become familiar with the process here complained of—the Alsop process—for bleaching flour?

A. Except in a general way.

Q. So that the answers you give in this case will be based upon your general learning and knowledge of the substances referred to in the assumption of facts upon which your opinions rest, as I understand it? A. Yes.

Q. Now, it appears—at least there is evidence in this case supporting these facts:—

Mr. Scarritt: (Interrupting) I object to a statement of that kind, if Your Honor please, as wholly incompetent.

The Court: You may proceed.

Mr. Scarritt: Save an exception.

By Mr. Butler:

Q. (Continuing) There is evidence in this case, tending to support these facts—

Mr. Scarritt: (Interrupting) Same objection.

855 By Mr. Butler:

Q. (Continuing) Namely, that the flour that was seized in this case was subjected to a treatment by a process known as the Alsop process, which consists in the production of nitrogen peroxide gas, which was mixed with atmosphere, was brought into contact with the flour, while it was in a state of agitation, and the flour was thereby treated, so that it was bleached or whitened to some extent, at least. I ask you whether or not in your opinion that process added to or imparted to that flour, so treated, any substance or substances.

Mr. Scarritt: Same objection.

The Court: Overruled.

Mr. Scarritt: Excepted to.

A. Yes.

By Mr. Butler:

Q. What substance, or substances?

A. Nitric acid, and nitrogen peroxide.

Q. What is the character of nitrogen peroxide?

A. Nitrogen peroxide is a gaseous substance. Brownish red, in color, very irritative to the mucus membrane, and a poisonous substance.

Q. What is nitric acid?

A. Nitric acid is a liquid, which may be volatilized, and is an exceedingly irritative, corrosive substance, and is a poisonous substance.

Q. Assuming that the bread made from flour containing such substances, also contained nitrite reacting material. I will ask you whether or not there is imparted to the bread any added substance. A. Yes.

Q. And the character of it, as to whether it is poisonous or not?

A. Poisonous, in character.

Q. Now, I would like to have you explain to the jury the effect,—chemical, or physical, or whatever it may be,—upon a person, of such substance taken with the bread.

A. The principal effect would be the action of the nitrite
856 contained in the bread, upon the red coloring matter of the red corpuscles of the blood, changing or converting

the hemoglobin of the blood into a substance known as met-hemoglobin. This substance is a foreign body in the blood circulation. It has, in combination, oxygen with the hemoglobin molecule, which is so firmly fixed in combination with the hemoglobin, that the vital processes of the animal body are not sufficiently strong to separate the oxygen from the hemoglobin, and consequently the substance met-hemoglobin circulates in the blood stream, as a foreign body, not a carrier of oxygen, until finally it is destroyed by the liver, or, if the quantity produced be beyond that which the liver is able to destroy, that excess quantity may appear in the urine of the individual. It removes from the blood circulation a certain, varying quantity of hemoglobin, which no longer may functionate as a carrier of oxygen to the tissues, to oxidize various substances, necessary to sustain life. Extra strain is, therefore, placed upon the liver, to remove this met-hemoglobin; and extra strain in the case of adults, is placed upon the red bone marrow, the production of corpuscles and hemoglobin, the oxygen-carrying material, to replace that which has been rendered inert by the action of nitrite, by having been converted into met-hemoglobin.

Q. And what effect, if any, upon health?

A. It would be injurious to health.

Q. I would like to have you explain a little more fully the office of the hemoglobin of the blood, and how it performs its function, and the effect of changing that—immediate and direct effect of changing that hemoglobin to the met-hemoglobin that you have spoken of.

A. In the blood stream there are red corpuscles, invisible to the naked eye, which contain a red coloring substance, which is known as hemoglobin, when it is not combined and, when it is combined with oxygen, to form a dissociable compound, oxyhemoglobin. In respiration, the hemoglobin contained in the red corpuscles of the venous blood, is brought into the lungs, where, they having an affinity for the oxygen, which is one of the gaseous constituents of the air, the hemoglobin combines with the oxygen to form oxyhemoglobin. This oxyhemoglobin contained in the red blood corpuscles is then conveyed, through the arterial system, to the various parts of the body, and, at the terminals of the arterial system—circulatory system, the blood corpuscles, passing through a mass of tissue in which vessels are indistinguishable by means of the microscope, and, in passing through this mass of tissue, to reach the terminal of the venous system, the oxyhemoglobin gives up its oxygen, to oxidize the tissues, or materials that may be in solution there, to form carbon dioxide, and to form water, and this oxyhemoglobin is thereby reduced to the condition of the hemoglobin, which is returned by the venous

system to the lungs, to be again oxygenated. That is where the hemoglobin will again combine with oxygen to form oxyhemoglobin and, thus, the hemoglobin serves as a carrier of oxygen—that is, the oxyhemoglobin serves as a carrier of oxygen, and a given quantity of hemoglobin may serve to carry a given quantity of oxygen to the system. Now, however, if any of this hemoglobin is converted into met-hemoglobin, which is a compound of oxygen with hemoglobin, in which the oxygen is more firmly combined than in the case of oxyhemoglobin, and, although, the quantity of oxygen is the same, in oxyhemoglobin as in met-hemoglobin, the oxygen in met-hemoglobin is so firmly attached—combined with the hemoglobin that the vital processes are not sufficiently strong to separate the oxygen from the hemoglobin, nor to use the oxygen to oxidize the tissue and tissue material, to sustain life, and, consequently, it passes through the circulation to the arterial system and the venous system, and continues this cycle until, finally, it is destroyed by the liver. Therefore, a certain quantity of the hemoglobin is rendered inefficient. It no longer functionates as a carrier of oxygen to the system, serves, or acts as a foreign body in the blood circulation, and, therefore, must be removed. As I have said before, it places an extra

858 strain upon the liver, in order to remove this, and it places an extra strain upon the red blood marrow, in adults, to regenerate the corpuscles, and also the hemoglobin, which they contain, to replace the corpuscles of the hemoglobin that has been rendered inactive by the action of nitrite, and the formation of met-hemoglobin.

Q. And is it your opinion that the nitrite in this flour, and bread made from it, will work that change upon the hemoglobin? A. Yes.

Q. And make it met-hemoglobin? A. Yes.

Q. With the resulting destruction of function? A. Yes.

Q. What is the extent of such action, or change, upon the blood, in relation to quantity of the nitrite reacting material contained—that is, does it vary, with the quantity taken?

A. Undoubtedly varies with the quantity.

Q. If sufficient be taken, may poisonous results, to the extent of great illness, or death, be produced? A. Yes.

Q. Now, if the quantities taken be very small and minute, will there be any such action as you have described, in the change of the hemoglobin to the met-hemoglobin? A. Yes.

Q. Now, is there any difference in the kind of action which takes place, or not between a deadly dose, and a very minute taking, such as would be taken with bread, or, is the difference only one of degree? A. One of degree.

Q. The same kind of action, without regard to quantity?

A. Yes.

Q. Now, the tendency of that action, as respects the health of a consumer of bread—a regular consumer of bread, made from flour so treated. What is the tendency, as respects health, or well-being? A. It would have an injurious effect.

Q. And, the degree of injury that would result, depends upon what?

A. Depends upon the quantity of nitrite present in the bread.

Q. Now, may health be impaired by the taking of such nitrite in bread, without the appearance of any observable symptom of impairment of well-being, following the taking of such bread?

A. If the quantity of nitrite administered or ingested be very small, it may not be observable by the instruments which are employed for making such diagnoses.

Q. Assuming that the bread be regularly consumed—bread containing these nitrites, may substantial injury come to health, without being able to observe any particular symptom, after any given taking of the nitrites? A. Yes?

Q. Would, or would not the system acquire a tolerance, or toleration, and adjust itself to minute quantities of nitrites added to the flour by bleaching, so that it might be said it would not produce any of the injurious effects in the blood, at all, which you have described?

A. So far as the blood is concerned, the chemical action would occur, whether the quantity of material were large or small, without any reference to tolerance.

Q. The action would continue?

A. The action would continue as long as the nitrite was being consumed by the individual.

Q. It has been suggested that nitrites are sometimes found in the saliva in the mouth, of human beings, perhaps frequently, or generally. Assume that to be a fact, I would like to have your opinion, whether or not that fact would change your views as to the injuriousness of nitrites added to bread through bleaching of flour. A. No.

Q. Why?

A. Because nitrites, from whatever source, would have the same action upon the blood, and nitrous acid—nitrites are not normal to normal saliva, although adults, particularly, have in their saliva nitrites, resulting largely from bacterial action in the mouth.

Q. Would the nitrite formed in the saliva, or existing in the saliva, be injurious? A. Yes.

Q. What is your opinion as to whether or not nitrites are, as a matter of fact, secreted normally in normal saliva?

A. My opinion is that normal saliva does not contain nitrites.

860 Q. Then, how does it happen that nitrites are found in the saliva of the mouth?

A. Because of bacterial action in the mouth.

Q. Do the salivary glands decrease nitrates, sometimes?

A. If nitrates have been ingested, those nitrates may be given off by the saliva, and these may be reduced, in the mouth, by bacteria, to the condition of nitrites.

Q. You say nitrates may be secreted in the saliva, after having been taken into the stomach, with food or otherwise?

A. Yes.

Q. And that the nitrates so secreted by the saliva may be changed in the mouth, by bacterial action, to nitrites?

A. Yes.

Q. And is it your opinion that that is one of the sources at least, of the nitrites which are found in saliva?

A. Yes.

Q. I would like to have your opinion, whether or not nitrates would be formed in the flour, as a result of bleaching.

A. I believe that nitrates would be produced, or nitro compounds.

Q. Now may nitrates, taken with food, in flour or bread, be changed by bacterial action, during the progress of digestion?

A. Yes.

Q. How?

A. Changed by the action of certain bacteria in the intestines, into nitrites, reduced by the action of bacteria from nitrates to nitrites.

Q. And, the effect upon the system, of nitrites to produced?

A. Would be the same as from nitrites produced from any other source.

Q. Are nitrites, in your opinion, normal constituents of healthy, and sound vegetable articles of food?

A. Nitrites?

Q. Nitrites. A. No.

Q. Or meats, free from any stage of decomposition?

A. No.

Q. If nitrites are found in vegetables, or meats, what, in your opinion, is the source of such nitrites?

A. The reduction of nitrates to the condition of nitrites.

Q. In what process?

A. By putrefactive processes. That is, by bacterial action, reducing these from nitrates to nitrites.

861 Q. That is, decomposition? A. Yes, sir.

Q. Action in the nature of decomposition?

A. Yes, sir, in the nature of decomposition—bacterial action. There may also be present, in meats, for example, sub-

stances at present unknown—that is, not isolated, undetermined, that might have an action also, upon nitrates, reducing the nitrates to nitrites.

Q. Other than the effect of decomposition? A. Yes.

Q. But, in any event, you think that the nitrite is not normal to the sound and healthy meat? A. No.

Q. But, as the result of change from nitrate to nitrite?

A. Yes.

Q. Now, it has been suggested, during this trial, that cured meat, bacon, and ham, I think—sometimes contains nitrites. Have you any knowledge upon that subject, or opinion, as to whether that is true, in point of fact?

A. In the curing of ham saltpetre,—potassium-nitrate,—is employed, and that would be a sort of nitrites by reduction of the nitrate to the nitrite, and furthermore in the process of smoking of the meat, we would have nitrites produced—salt meat.

Q. Now, as to the effect of such nitrites, when taken into the system. Is this the same as the nitrite contained—

A. (interrupting) Same as nitrites derived from any other source.

Q. It appears that, if flour be subjected for a relatively long time to the bleaching medium employed by the Alsop process, that it will turn yellow,—some of the witnesses describing it as orange color, some, I think, as lemon, and some as yellow. What produces that, Doctor?

A. The action of nitric acid upon the gluten of the flour, with the production of a nitro compound, called xanthroprotein—an orange-yellow substance.

Q. Now, I want to get at the character of that substance—that yellow-orange substance, xanthroprotein, as to
862 whether or not it is poisonous? A. When ingested?

Q. Yes—taken as food, I mean.

A. Yes, I should say.

Q. Now as to the use of such flour. What would its effect be upon health?

A. The same effect that one would observe by the action of nitrites, because this substance contains NO₂ groups, and, when the material is digested, the formation of nitro-albumose, and nitro-peptone. These substances break up with the reduction of nitrites, and, therefore, you would have action upon the hemoglobin, that produces the met-hemoglobin.

Q. I will ask you to give us your opinion as to the relation of the amount of poisonous material in flour, bleached simply long enough to whiten it, with that so treated as to produce the xanthroprotein.

A. The flour bleached merely to whiten it, would contain a less quantity of nitrite material, than the flour bleached until

it had become yellow, and, therefore, in the case of the flour that had not bleached only to whiteness, the action of the nitrite would be less, because of the lesser quantity of nitrite material in the flour, whereas, in the case of flour that was bleached to yellowness, the quantity of nitrite material would be, or nitro material, would be larger, consequently the action would be greater than in the case of the flour bleached merely to whiteness.

Q. It would be the same poison, but differing in amount?

A. Yes.

Q. Now, Doctor, referring to this specific flour that has been seized in this case, you may assume that it contains nitrites, or nitrite reacting material, which, calculated as nitrite of sodium would yield, in a forty-eight-pound sack of flour, four grains, and you may further assume that there will remain in the bread made from that flour, one-fourth to one-fifth of such nitrite reacting material, so, on the basis of seventy loaves to a sack of flour, would yield, nitrites, computed as nitrite of sodium, one seventieth to one one-hundredth of a grain, per loaf. I will ask you whether or not in your
863 opinion the consumption of such flour, or bread, would be injurious to health, assuming it to be consumed regularly in such quantities as bread is, usually consumed.

A. Yes.

Q. Now if the quantity that I have given you be substantially reduced, or, indeed, reduced so that the quantity be taken to be relatively minute. I will ask you if that would alter your opinion as to the kind of effect the consumption of that bread would have.

A. No. Except that the action would be less in degree.

Q. Less in degree, but the same in kind? A. Yes.

(Recess taken for five minutes)

Cross-Examination

By Mr. Smith:

Q. Doctor, you, in answer to a question by Mr. Butler, I believe, stated that the process that was described by him would, in your judgment, impart to the flour nitrogen peroxide. Am I right? A. Yes.

Q. You never examined any of this flour treated by that process, to determine whether or not nitrogen peroxide was present in the flour, did you? A. No.

Q. If it is not in the flour, then the conclusions to which you testified would have no foundation, would they?

A. In respect to nitrogen peroxide?

Q. Yes, sir. Your conclusion as to the condition of this flour is based upon the assumption that it contains nitrogen peroxide, is it? A. Not wholly.

Q. Upon what do you base it?

A. Compounds that are produced by the action of nitric acid.

Q. If this flour does not contain nitric acid, then what?

A. Then assuming that it does not contain nitric acid, or nitro compounds, or nitrites, or nitrogen peroxide, of course the flour would not be injurious.

864 Q. Of course, if the flour doesn't contain something, it is all right, is it? A. Yes, sir.

Q. Now the substance that is referred to in this case, as nitrites, or as nitrogen peroxide, or as nitrite reacting material,—do you use those terms interchangeably?

A. Yes. Nitrite reacting material.

Q. So, in this investigation, it will be all right, then, to refer to it as nitrites? A. Nitrogen, or nitrogen peroxide.

Q. Those are different terms, meaning the same horrible thing? That is right, isn't it? A. Yes.

Q. Now, you never examined any of this flour? A. No.

Q. And of course you don't know whether there is any there or how much is there? A. No.

Q. But you have merely given your testimony, based upon your general knowledge of chemistry, and the results of chemical action? A. Yes.

Q. Now, isn't it true, Doctor, that there may be a great many chemicals, which, if taken in sufficient quantity, will produce injurious effects, which, if taken in minute quantity, or gradually, instead of producing harmful effects, are, in fact, beneficial?

A. There are substances which may be taken in minute quantities, which will not yield observable effects—general observable effects—effects that can be measured and determined.

Q. Yes, but do you, as a physician and a chemist, know that they will either have a negative or a beneficial effect?

A. I am not a physician.

Q. But, what would you say, as a chemist? Wouldn't the effect be either negative, or beneficial?

A. If a large quantity of a material that is injurious be taken, then, we would observe effects—that is, visible appearance of the effects. The effects may be measured by the instruments that are available to the physician or to the physiologist.

Q. Well, let us take a concrete case. Nicotine, if
865 taken in sufficient quantities, would be fatal, wouldn't it? A. Yes.

Q. Now, how much nicotine would I have to take into my system to have a fatal effect?

A. That would depend upon whether or not you are accustomed to taking nicotine.

Q. Well assume that I am an ordinary smoker, how much nicotine would I have to take into my system, to kill me?

A. A very small amount.

Q. It would be a very small quantity?

A. I am not able to say the exact amount.

Q. Less than a grain? A. Oh, yes.

Q. Less than a grain of it? If I took less than a grain of it, it would kill me? A. Yes.

Q. And yet, if I smoke a cigar, it doesn't harm me, does it?

A. Oh, you are taking much less than a grain. You are taking a very small amount.

Q. When I smoke a cigar, I am taking a very small quantity? A. Notwithstanding, it is having its effect.

Q. Injuriously? A. Yes.

Q. You don't indorse that theory, do you? A. I do.

Q. Do you think that all of us, when we smoke a cigar, that we are having injurious effects? A. Yes.

Q. Would you, as a witness, be willing to say that, as a chemist, you believe that the taking of a small amount of nicotine into our systems, as we do when we smoke a cigar, would have an injurious effect? A. Yes.

Q. Now, pardon me,—without being personal—you did that, during the recess, didn't you?

A. Yes, I am an habitual smoker.

Q. Now, you don't believe, do you, that you have shortened your life, do you, or impaired your health?

A. I am inclined to believe that I have.

Q. You are not very certain of this, are you? You don't have any moral compunctions because of the use of it, do you?

A. Well one will persist in pleasures that are dangerous.

Q. Yes, I guess that is true, and that is one of the pleasures in which you think the enjoyment overcomes the deleterious effects, is it? Well, may it not be that eating white bread, is a pleasure which may overcome the deleterious effects of nitrites that may be in it, as well as smoking a cigar overcoming the effects of the nicotine?

A. It is a question in my mind whether I prefer a white bread, that has been treated with a bleaching material, or a bread that has not been bleached. I think that I, even from the physical appearance of the bread, choose the bread that is unbleached.

Q. Well, that is a matter of taste, as it is a matter of taste about smoking, isn't it? A. Largely.

Q. Now, what would be a fatal dose of nitrites, if I took it in the form of sodium nitrite?

A. That would largely depend upon the individual—possibly ten or twelve grains.

Q. Well, let us assume we have just an ordinary individual, average size, average health, and average condition, as the

most of us are, here. How much would be a fatal dose of nitrites, taken in the form of sodium nitrite?

A. It might be more than ten or twelve grains.

Q. It might be less?

A. Possibly might be less, depending upon the individual.

Q. Well, now, let us assume that a man of ordinary health, average age, such as this jury, or myself, or yourself,—suppose that we took into our systems, in the form of sodium nitrite, during a period of ten hours eight grains of sodium nitrite.

Mr. Scarritt: Nitrite?

By Mr. Smith:

Q. (Continuing) Nitrite. What would be the effect?

A. I think it would be an injurious effect.

Q. It would kill him? A. Might.

Q. That is your judgment, that it would kill him?

A. It might. I will not say it would.

Q. Well, of course, it might. If I swallow 'most anything it might kill me, but I want to know whether or not, in your judgment, as a chemist, it would kill him.

A. It might. I don't know.

867 Q. Is that the most definite answer you can give to it? A. Yes.

Q. Suppose that I take, concentrated into a few doses, which I would take during a period of ten hours, all of the nitrites that would be contained in bleached flour making the bread that I would eat for a period of seven years, and I could take that, concentrated, so that I could take it into my stomach in the form of sodium nitrite, in ten hours, what would you say would be the effect on me? A. Injurious.

Q. To what extent?

A. Not to the production of death.

Q. To what extent would it be noticeable?

A. It might not be visibly noticeable, but, notwithstanding, it would have its chemical effect.

Q. What is a medicinal dose of nitrites?

A. Oh, from one grain up to two or maybe three grains.

Q. All right. Let me increase it to nine. I will take nine times a medicinal dose, and I will take it all in a period of ten hours, in the form of sodium nitrite. Would the effects be observable?

A. It is quite possible that the effects would be observable.

Q. In what way would they be observable?

A. You would have lowering of the blood pressure.

Q. What other forms?

A. Might have irritation of the stomach.

Q. What other forms?

A. You might have influence upon the nervous system.

Q. Anything else?

A. That is all, except, of course, the action upon the hemoglobin in the blood.

Q. Yes? We will come to that, pretty soon. If it were shown that, during a period of ten hours, an individual did take nine grains of nitrite, in the form of sodium nitrite, without any effect at all, observable, what would you say then, was the result, or the injurious effects of nitrites?

868 A. I would say it would injuriously affect the hemoglobin of the blood, but, possibly not a visible effect upon the blood pressure; or, upon the stomach, or upon the nervous system.

Q. Suppose he took twenty grains into his stomach, in a period of twelve hours, what would be the result?

A. In the case of twenty grains?

Q. Yes, sir.

A. I should say that, in the case of twenty grains, distributed over ten hours?

Q. Ten hours, yes.

A. That you would have a decrease in the blood pressure, that would be observable.

Q. Would the patient feel it? Would the patient know that he was affected in any way?

A. I think the patient would be uncomfortable.

Q. Well, pray tell me, how many grains he would have to take, in ten hours, to kill him.

A. I don't know. I imagine if he were to take twenty grains, at one dose, that it probably might kill him.

Q. Well, according to the testimony here, if I may refer to it, as Brother Butler did, in order to get twenty grains into him, a man would have to take all the nitrites contained in the flour that he would eat, in a period of about fifteen years. Now, you think, if he could concentrate that all into one dose, and take it in one dose, you think possibly it might kill him, but you are not sure of that, are you? A. No.

Q. And, if, during a period of say five or six years, if it were all concentrated, if it wouldn't make more than about eight or nine grains, and he took all of that in one dose, do you think he would be able to notice the effects?

A. He probably would be able to notice the effects.

Q. But you are not sure about that? A. No, sir.

Q. Have some little doubt about it, haven't you?

A. Not much.

Q. Would you say it would be noticeable if he could?

A. Yes.

Q. In its color?

869 A. No. By means of the spectroscope you could detect the presence of the met-hemoglobin.

Q. Well, we will talk about met-hemoglobin pretty soon, but, let me ask you. If he took that amount of nitrites into his system, in that length of time, would it have any effect on the color of the blood? A. Probably not.

Q. How much would he have to take, to affect the color of the blood? A. I don't know.

Q. Isn't it a fact that one of the first effects observable is the color of the blood?

A. Yes, but it is not usually determined by merely being visible to the naked eye, by inspection of the blood, but it is determined by means of the spectroscope.

Q. Yes, but would the color be discernible?

A. By the spectroscope we might detect the presence of met-hemoglobin. We would detect the presence of met-hemoglobin.

Q. How much would he have to take into his system, in the course of ten hours, in order that you might determine its presence with the spectroscope?

A. I should judge that, if he were to take three grains, or four grains.

Q. You could determine it?

A. In eight or ten hours, you could determine it.

Q. Well, if he took eight or nine or ten grains, it would be plainly discernible by the spectroscope? A. Yes.

Q. But, if a person had taken into his system, during a period of nine hours, ten grains of it, and you could not discern it by the spectroscope, and you were not able to discover anything, by the spectroscope, on the color, what would you say?

A. I would say perhaps the spectroscope was not sufficiently delicate.

Q. Is that the only answer you can make to that? Wouldn't you say that it didn't have any effect on him?

A. No, sir. It would depend upon the excellency of the spectroscope.

Q. Are you prepared to say that the spectroscope would disclose any discoloration, in a period of eight or nine hours, if the person had taken ten grains?

A. I think so.

870 Q. You never tasted it, did you? A. No.

Q. Did you ever experiment with any person, to see how much of this he could take into his system, before the spectroscope disclosed that in his blood? A. No.

Q. Now, Doctor—Professor—you say you are not a doctor?

A. Mister, is quite sufficient.

Q. Well, pardon me. I thought you were a practicing physician, as well as a professor in chemistry? A. No, sir.

Q. You have taken a degree in medicine? A. Yes.

Q. That is what I thought. I thought you were entitled to the title. Now, this substance which is taken into the stomach, in bleached flour, as described by Mr. Butler—is that an organic or inorganic nitrite?

A. Please repeat the question.

(Question read by the reporter)

A. In answer to that, I would say I have not investigated the flour in question, but, from my general knowledge, I would say that it is likely that some of the nitrous acid was in combination as inorganic material, and some of the nitric acid as inorganic substance.

Q. Well, when you get the nitrites, now, that we have got here are those an organic or inorganic substance?

A. It depends. Nitrites are usually looked upon as inorganic substance—nitrites of sodium, nitrite of potassium, and so on.

Q. Now, what I want to know, Doctor, in your experience, in the University of Pennsylvania, or in your experience outside of it, have you, within your personal experience, ever seen a person, where, because of the food he had eaten, which contained nitrites, that he had contracted a case of nitrite poisoning? A. No.

Q. In your experience, as a Professor in the University of Pennsylvania, or outside of that, has there ever come under your observation a case where a person was suffering from nitrite poisoning, due to the nitrites he had taken in—
871 to his system in the form of food, or drink? A. No.

Q. Now, you know, do you not, that nitrites are present in a great many different forms of food products?

A. In food products that have undergone some change, bacterially, yes.

Q. Yes? You know that nitrites are present in the air, don't you? A. Yes.

Q. You have recently made extended investigations on that, haven't you? A. Some investigation, yes.

Q. And you have recently found that nitrites were present in food that had not undergone any form of decomposition, have you not?

A. Now, what do you mean by that—food that had not undergone decomposition?

Q. Food which was in a perfectly healthy state.

A. You mean, starch, for example?

Q. Yes.

A. Yes, my investigations were made upon starch.

Q. You have recently investigated the question of the nitrites contained in corn starch, haven't you? A. Yes.

Q. And that is a product intended for food, isn't it?

A. Yes.

Q. You were recently a witness in the case of the State of Pennsylvania against Hoffman, where he was substantially charged with making an adulterated product in the form of a corn starch? A. Yes.

Q. And the question was, whether he had imparted nitrites to the corn starch, wasn't it? A. Yes.

Q. And you were a witness for Hoffman? A. Yes.

Q. Now, you made quite an investigation in that case, didn't you, as to the presence of nitrites in the starch, which might be imparted to it? A. Yes, sir.

Q. How did you find it was imparted?

A. I found it was imparted to the corn starch by the air, because the corn starch was slightly alkaline in character, and, when the corn starch came in contact with the air, which contains nitrous acid, it absorbed the nitrous acid, forming sodium nitrite, and remained fixed.

Q. And you found that the corn starch which you
872 were investigating, and which was under consideration there, had the nitrites imparted to it, by reason of the presence of the atmosphere, didn't you? A. Yes.

Q. And do you remember the amount which you found that that corn starch had taken up from the air? A. No.

Q. Let me remind you. Didn't you testify it was about fifty-seven hundredths part of a million?

A. If that is an official record of the case, I will say yes, but I cannot, off-hand say.

Q. Well, your best recollection is that is right, isn't it?

A. Possibly is.

Q. Now in pursuing your investigations, you went quite extensively into the presence of nitrite in the air, and how it might be taken up, and where it might be taken up, didn't you? A. Yes.

Q. Now, I wish you would tell the jury some of the places where you exposed the corn starch, to see if the presence of atmosphere imparted nitrites to it. A. Yes, with pleasure.

Q. Yes, sir. I know we will all be pleased to hear it, because I read it with a great deal of pleasure.

A. Corn starch that is made by a certain process, which is called the alkali process, contains, in the finished product, namely, the corn starch, an average of about twelve thousandths of one per cent of alkali, calculated as sodium hydroxide. Now, then alkali has an affinity for hydrogen.

Q. Pardon me, Doctor. I know the court wants to hurry up, and if you will just answer my questions, perhaps we will get along faster. My question was, the different places you exposed this, to see where it would take up the nitrites.

A. Very well, sir, and this alkali corn starch, I exposed wrapped in two thicknesses of foolscap paper, in my bed room,

and another package on the mantle piece above the kitchen range, in my kitchen. And, after, I think, seven days, I have forgotten exactly the number of days—

Q. (Interrupting) Six?

873 A. Six, was it? Six. I examined this corn starch, to determine whether or not it had absorbed any nitrous acid from the air.

Q. Nitrites, from the air, you mean? A. Yes.

Q. And what did you observe?

A. I should say, however, that the starch which I employed, and also the caustic soda,—the sodium hydroxide which I employed, were entirely free from nitrous acid, and nitrites in the very beginning, and I found that, after this period—

Q. (Interrupting) One hundred and forty-four hours, is the way it is here.

A. Yes, after an exposure of six days, the corn starch that contained alkali, which was exposed in my bed room, took up a certain quantity of nitrous acid from the atmosphere, to form nitrite of sodium, and that the corn starch exposed in the kitchen, wrapped in two thicknesses of foolscap paper, also an alkaline corn starch, absorbed a greater amount of nitrous acid from the atmosphere.

Q. By nitrous acid, what do you mean is nitrites, here?

A. Yes. But I should like to say, also, that I took some starch, entirely free from nitrites, and free from alkali—that is free from caustic soda, which I exposed under the same conditions, during the same period, and I examined that starch, and found that the starch did not contain nitrites.

Q. It did not take it up?

A. No, sir. It was necessary the alkali should be present.

Q. But a portion of that, you exposed in your bed room, and you found, in that period, it took up twenty-five hundredths parts of nitrites? Isn't that true?

A. If that is the official record.

Q. Isn't it, to the best of your recollection?

A. I can't remember.

Q. That was about it?

A. If you will show me that that is the official record, I will say yes. I have no means—

Q. (Interrupting) No, but without quibbling over the decimals—

A. (Interrupting) I am not quibbling over it.

874 Q. You found it took up a considerable amount of nitrites, did you? A. Yes.

Q. Now, that bed room was reasonably well ventilated, wasn't it? A. Yes.

Q. It was the same air you breathed, when you were in the bed room? A. Yes.

Q. And the nitrites imparted to that corn starch were the same nitrites you have been testifying about, being so injurious to health? A. Yes.

Q. And that was simply because the air, circulating through your bed room, came in contact with it, and passed through two layers of foolscap paper, to the corn starch, and the corn starch took it up? A. Yes.

Q. Now, of course, when you breathed that atmosphere, you breathed in those same nitrites, into your system, didn't you? A. Yes.

Q. Now, you made some other investigations, exposing the corn starch in some other places, didn't you? Didn't you put some out on the university campus?

A. No, not on the university campus.

Q. I think that is right.

A. Some distance from the university.

Q. But you tested the air at the university campus? Now how far is that from the city?

A. Almost in the center of the city. I think it was about a mile from the center of the city.

Q. Well, you found that the air in the university campus contained a considerable amount of nitrites, didn't you?

A. Yes.

Q. As a matter of fact, every place where you exposed it, to any atmosphere, you found that it took up nitrites, didn't you? A. Provided it was alkaline in character.

Q. Yes, certainly, certainly—had some affinity? A. Yes.

Q. I don't use that in the Pittsburgh sense, but in the chemical sense. Now, these same nitrites which were
875 taken up by this alkali, were the same ones which you say would be in this flour, were they not,—the same substance? A. Oh, yes.

Q. One is just as bad as the other?

A. It is the same substance.

Q. Same thing? Now, did you suggest to the commonwealth of Pennsylvania that this corn starch, which had imbibed, or taken up these nitrites, had become an adulterated food product, that was injurious to the citizens of the state of Pennsylvania?

A. I did not, for the reason that the prosecution was not brought for that purpose. The law, in Pennsylvania, states that nitrites shall not be contained in food stuffs.

Q. Well, corn starch is a food stuff, isn't it?

A. There is no statement in the law, as to the injuriousness of nitrites in corn starch.

Q. Oh, I see.

A. And the prosecution was brought on another basis.

Q. Well, as a matter of fact, corn starch which had become charged with nitrites, as you found it to be, would be just as bad for me to eat as flour which had taken up an equal amount of nitrites, wouldn't it?

A. Yes, and, if the question had been asked me at that trial, I should have answered affirmatively.

Q. Oh, I don't doubt that, Doctor. I don't think you would make one statement in Pennsylvania, and another in Missouri. I don't think that. I don't want you to feel that I insinuated that. But, what I was trying to develop, was the presence of nitrites in so many food products. Now, you have examined the human saliva for nitrites, haven't you, and found that it was present, there? A. Yes.

Q. Did you ever make an examination of any person in whom you didn't find it present? A. No.

Q. As a matter of fact, whether it is due to bacterial action, or what,—I don't care,—it is present in the saliva of every human being? That's a matter well understood by chemists, isn't it?

876 A. Well, it was present in every sample of saliva taken from the mouth I examined.

Q. That is true, whether it is an infant child, old person, or grown person?

A. More likely in an old person, I should think, than a child.

Q. Don't you know that it is there, in the mouths of children that are nursing on their mother's breast?

A. Yes, I believe so.

Q. And that child, every time it swallows saliva, is taking nitrites into his system, isn't he? A. Yes, sir.

Q. And continues to do that all the days of his life?

A. Yes.

Q. And notwithstanding that, there never was a case came under your personal observation, at any time during your connection with the Pennsylvania university, where any of these persons might be brought who had taken nitrites into their system in the form of food product, and you have never seen a case of nitrite poisoning? That's true, isn't it, Doctor?

A. Yes.

Q. Now, you know that this is contained in a good many other products, such as cured meats? A. Yes.

Q. It is contained in the fish that are sent out here in the West, that is cured in the East, isn't it? A. Yes.

Q. Now, the nitrites which are contained in that, would be the same character as those contained in flour, or bread?

A. Yes.

Q. One just as bad as the other? A. Yes.

Q. Now, have you ever heard it suggested, in any of your chemical associations, or meetings of chemists, that these articles of food should be tabooed, because of the presence of nitrite in them? A. No, I never have.

Q. Did you ever read, in a work on hygiene, or the writings of anybody who treated it from the standpoint of hygiene, that articles which contain these minute amounts of nitrites should be discarded as food products, because of the presence of nitrites in them? A. No.

Q. And you have read a good deal on the subject of hygiene, haven't you? A. No; not a great deal.

877 Q. Well, as a chemist, and as a professor in the university of Pennsylvania, you keep abreast of these publications, do you not?

A. Not so much in respect to hygiene, as purely chemical things.

Q. Well, in any of your chemical journals, or anything, or in your meetings of chemists, has the presence of nitrites in these articles of food that we have had reference to, here, ever been suggested as a reason why those food products should be discarded? A. Not at any meeting that I have attended.

Q. Now in respect to the action, when you take these into the system in the way of food products. It is taken up by the digestive organs, and, in that method, taken into the blood?

A. Yes.

Q. And,—I don't know whether I can pronounce these names, but I'll try it,—you have got what is called "hemoglobin" in the blood? A. Yes.

Q. Is that a normal constituent of blood? A. Yes, sir.

Q. Then the blood of a healthy person, as a normal constituent would contain what you call "hemoglobin"?

A. Yes, necessary constituent.

Q. Yes, that is a necessary constituent? A. Yes.

Q. Now, you say, if I took these nitrites into my system, and they are taken up into the blood, it then forms what you called "met-hemoglobin"? Is that right? A. Yes.

Q. How would you detect that, in the presence of the blood?

A. By means of the spectroscope.

Q. How would your spectroscope disclose it? Is it because of the difference in the color?

A. No. Because of the different bands produced in the spectrum.

Q. Well, this infant that takes these nitrites into his system in his saliva,—is its blood being surcharged with "met-hemoglobin"?

A. It would not, possibly, with the quantity that would be produced in the case of an infant;—might not be sufficient to

be detected by means of the spectroscope, unless the spectroscope were an exceedingly good one.

Q. Have there come under your personal observation, cases where persons were suffering from met-hemoglobin, due to the nitrites taken into the system; in the food that they ate?

878 A. I have never had such a case. I have no knowledge of such a case, except that I know that, when I eat ham that is produced here in the west—which is very good ham—

Q. Yes,—you don't dare to say anything else, in Kansas City? A. Well, I have come to the West, to learn.

Q. Yes.

A. Receive wisdom from the wiser men of the West.

Q. All right, you are imparting yours to us.

Q. That I feel very uncomfortable. I never have examined my blood, under such conditions,—that is, after having consumed ham, but I am inclined to believe that my discomfort is due to the production of met-hemoglobin, due to the reduction of the nitrates of the ham by the bacteria of my intestinal tract, and by the nitrites that have been produced in the ham.

Q. You never examined your blood to see whether that's the case? A. I never have.

Q. Now, isn't it more likely due to the fact that you ate too much of it? A. No, I think not.

Q. Well, if you are like the rest of us, here, it is due to the fact you are eating too much, and exercising too little. Now, Doctor, in all your experience in the University of Pennsylvania, in the study of chemistry, you have never had come under your observation a single case where a person was suffering from what was diagnosed as met-hemoglobin, due to the nitrites in his system, imparted by what he had eaten, did you?

A. Such case I never observed; never been brought to me.

Q. Never heard of it? A. No.

Q. And yet you say the child has been taking it into its system by the way of saliva from the time of its birth?

A. Yes.

Q. And we have been taking it into our system, by the water we drink, and by the air we breath? A. Yes.

Q. It is in the very water we drink?

A. Yes; many of them.

Q. It is in the food products we eat? A. Yes.

Q. And notwithstanding all of that, you never heard
879 of a case, or have ever seen a case where a person was suffering from what you call nitrite poisoning, because of what he had eaten, or because his blood contained met-hemoglobin because of what he had eaten, did you?

A. It is quite possible a number of such cases have occurred, but not to my personal knowledge.

Q. I am talking about your personal knowledge, as a physician. You never have heard of any? A. No.

Q. Now, can you estimate to this jury about the amount of nitrites that would be taken into the system, in 24 hours, in the form of saliva that goes to our stomach?

A. No, because the quantity of nitrite reacting material in the saliva would vary, very much, with the individual, and also with the volume of saliva given off by the particular individual. I never have made a quantitative determination of the quantity of nitrite reacting material in the saliva.

Q. Returning to this starch matter, again, that you investigated, back there. You found, did you not, that some of this starch had taken up, from the air, as much as 2.8 parts per million of nitrogen, did you not?

A. If that is the official record, I will say yes.

Q. Well, those are the figures I have. Of course, I can't say that is the official record. It is a copy of the testimony. It isn't certified. A. I suppose it is right.

Q. To the best of your recollection, that is the amount you found, was 2.8 per million? Is that not right?

A. If that is the correct statement, in the record.

Q. Well, it is what is stated here, but I can't say that that is an official record.

A. Well, I want to qualify it that way, Mr. Smith.

Q. You are not prepared to say those figures are not correct?

A. No, I am not prepared to say they are not correct, nor am I prepared to say they are correct.

Q. Well, you don't recall whether that is correct, or not?

A. No.

880 Q. And all of these that were in there were taken up from the air, were they not? A. Yes.

Q. Do you know as a matter of fact, in what different food preparations corn starch is used?

A. Well, I suppose it is largely used in making pudding.

Q. It is a matter of quite common use, for cooking purposes, is it not? A. I suppose it is.

Q. That is what it is manufactured for, isn't it?

A. Oh, yes. It is edible.

Q. Now, do you know whether or not nitrites are administered as a medicine, to persons who are suffering with asthma? A. I don't know. I am not a practitioner.

Q. You can't give any information on that. Now, since there has been no case coming under your personal knowledge, or your observation of any person who has ever contracted nitrite poisoning, due to the nitrites eaten, in anything they ate, and since you have never seen a person whose blood was contaminated with met-hemoglobin, due to the nitrites taken in

anything he ate, why, your conclusion that this would be injurious is derived wholly from your theoretical knowledge, rather than from any practical knowledge, isn't it?

A. No. From my chemical knowledge, by actual experimenting in the production of met-hemoglobin by the use of nitrites.

Q. On human beings?

A. Well, on blood outside the body.

Q. Blood outside the human body?

A. Yes, blood outside the body, and the blood of dogs, in the dog, itself.

Q. You may draw off some of my blood—I am speaking figuratively, now—in a receptacle, and there experiment with it, and perhaps it would produce met-hemoglobin, but you never discovered it in the veins of a human being, did you?

A. I never have experimented with human beings. I have experimented with dogs.

Q. All right. Let us talk about human beings. You never discovered hemoglobin in the veins of a human being, did you?

A. I never discovered it, because I never made the attempt.

Q. All right. You never found any hemoglobin in the veins of a human being, did you? A. Oh, yes; lots of it.

Q. Well, that was my question, whether you ever did?

A. But you said hemoglobin, Mr. Smith.

Q. Yes, that's what I said.

A. Hemoglobin? You mean met-hemoglobin, do you not?

Q. Yes, I beg your pardon. You never found met-hemoglobin present in the veins of a human being, did you?

A. I never have examined the blood of a human being.

Q. Well, I want an answer to my question. You never found met-hemoglobin in the veins of a human being?

A. Well, now, that assumes that I have made the tests.

Q. No, it don't assume anything. I asked you the question.

A. I will answer it, by saying, I have never tested the blood of a human being to determine whether or not the met-hemoglobin was present.

Q. All right, then. Your testimony that the eating of these nitrites in food would produce that condition, is not derived from any personal knowledge, but it is wholly a matter of deduction on your part, isn't it? A. Not at all.

Q. Why, you never saw it in the blood of a human being, did you, in the veins of a human being?

A. The action is a chemical action, and the action will take place in the circulatory system. It would take place in the cir-

culatory system of the lower animals just as well as it would take place outside the body, with the blood outside the body.

Q. But let me get back to my question. You will pardon my suggestion, that, while neither you nor I live in Missouri, we are in the state where they, proverbially, have to be shown. I want to know whether you ever saw, in the blood of a human being, what you call met-hemoglobin?

A. I never looked for it.

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Redirect Examination

By Mr. Butler:

Q. If I were to ask you whether you ever had brought to you, a person who was poisoned to death, or practically to death, by strychnine, and you should answer that you had not seen that, personally, would that, in your opinion, Doctor, have any tendency to prove that strychnine is not poison, and might be added to flour?

Mr. Smith: I object to that, as argumentative, and not proper redirect examination.

Mr. Butler: Didn't you argue anything, Mr. Smith?

Mr. Smith: I have a right to argue.

Mr. Butler: But I haven't?

The Court: He may answer.

Mr. Smith: Exception.

By Mr. Butler:

Q. Mr. Smith asked you, many times, whether you had ever seen met-hemoglobin in the blood of a human being, or in the veins of a human being, or in the blood in the veins of a human being. I will ask you to tell us how it is established or known that nitrites will change the normal hemoglobin, the oxygen carrier of the blood, into met-hemoglobin,—the foreign substance that must be eliminated. How is it known that nitrites do that thing?

A. Oh, it is known, in the first place, from the fact that outside the body blood will be acted upon by nitrites, and will produce the met-hemoglobin, and, furthermore, by my own experiments with dogs. I have the presence of met-hemoglobin in the blood of the dog. I don't care to particularly experiment with a human being, by the administration of sodium nitrite, for the production of met-hemoglobin; rather perform the experiment upon a dog, and lower animals. But, it is a chemical action, and if it would occur on the blood outside of the body, it would occur in the inside.

Q. Does this action that you speak of take place in obedience to a chemical law? A. Yes, sir.

833 Q. As well known as the law of gravity?

A. Yes, sir.

Q. Now, you may tell us whether or not it is recognized that nitrites, taken into the stomach, do, by virtue of that well known chemical law, change the blood in the way you have described in your direct examination? A. Yes.

Q. Did you, Doctor, in the cross-examination of Mr. Smith, have opportunity to say all that you desired to say, with respect to your testimony in Pennsylvania?

A. Well, in respect to the testimony in Pennsylvania, the action, there, was brought according to the Pennsylvania law.

Mr. Scarritt: We object to that as repetition.

Mr. Butler: Well, Judge Scarritt, I am very sure that you do not want to claim that Doctor Marshall is indicating a position here, different from that in Pennsylvania.

Mr. Scarritt: He has so stated.

Mr. Butler: Well, I am very sure that you gentlemen are anxious that, if he would like to state it fully, that he be permitted to do so. It cannot hurt your clients, or Alsop.

Mr. Scarritt: I want to save time, is why I object to it.

The Court: Well, you are both saving time.

Mr. Smith: Now, of course, I am—

Mr. Butler: (Interrupting) Now, two lawyers jump up and make objections,—if four jump up and object I know we will save time.

The Court: If the witness wants to make any additional statement, he may; otherwise he will go on.

Mr. Smith: I make no objection to that.

The Court: I think I understood what the witness said.

Mr. Butler: Mr. Smith interrupts every witness that he examines. Now, I was not sure that Doctor Marshall had opportunity to answer his questions. It is not a purposeful fault, but a fault of Mr. Smith.

884 The Court: Just a moment. This case is being tried under five divisions of this pure food law, entered by Congress four years ago.

Mr. Scarritt: Three.

The Court: Four. Well, you shake your head until I think three. One of which is with reference to the false branding, and three are, with reference to the subdivision under section

7,—first, fourth and fifth. That makes four. Now, I am right about that, am I not, Judge Smith?

Mr. Smith: I think, though, Your Honor indicated, the other day, certain ones that he checked, here.

The Court: Now, I understood this witness to say, here, that the subject matter of inquiry in the Pennsylvania case, was not with reference to one of these, and I think I understand what the Professor has said here. I don't think there is any use elaborating upon that.

The Witness: Your Honor, I should just like to make one brief statement.

The Court: All right.

The Witness: And that is, that when this case in Pennsylvania was about to be tried, I plainly stated to the individuals that, if this case was based upon that—

Mr. Scarritt: We object to what he said.

The Court: Proceed.

Mr. Scarritt: Exception.

The Witness: (continuing) Based upon the injuriousness of the presence of nitrites in the corn starch, I would drop out of the case, because I couldn't testify.

The Court: Well—I so understood it, awhile ago,—that is, with reference to this discussion, the recital of the Pennsylvania law. The pure food law of congress has that in, under subdivision 5, “if it contains any added poisonous or other deleterious ingredient, which may render such article
885 injurious to health.” But I think I understand what the gentleman is saying, and I think the jury does.

By Mr. Butler:

Q. But the nitrites, wherever found, result in injury to health, whether found in corn starch, or in hams, or elsewhere? A. Yes.

Q. Have you ever otherwise testified, or claimed? A. No.

Q. May there be injury to health, if the consumer ate the nitrites, in bread, without any symptoms of nitrite poisoning, and without any poisoning to death by nitrites, from the consumption of bread?

A. Yes, without any observable symptoms.

Q. Then does the fact that no one has ever been brought to you, or come under your observations, suffering from observable symptoms of nitrite poisoning taken in food, prove, or in any manner or degree tend to prove, that the nitrites

added to this flour by the Alsop process are not injurious to health?

Mr. Scarritt: We object to that, if your Honor please, because it assumes that nitrites are added, and it is simply argument.

The Court: That is objectionable. Objection sustained.

By Mr. Butler:

Q. May there be injury to health, by nitrites in food, without the person consuming the food ever disclosing any observable symptoms of nitrite poisoning?

Mr. Scarritt: You just asked that question a moment ago.

Mr. Butler: No, I did not.

Mr. Scarritt: Well, he may answer it. Go ahead.

A. Yes.

By Mr. Butler:

Q. And is that usually the case? A. Yes.

Q. And is it, with many other substances, injurious to health? A. Yes.

886 Q. As a rule is it true, do you think? A. Yes.

Q. Do you happen to know whether the wheat flour is alkaline, as was the corn starch, that you experimented with, that took the nitrites from the air, or whether straight flour is, normally, acid. A. Wheat flour is, normally, acid.

Q. So it would not, then, take the nitrites from the air?

A. No.

Q. And the corn starch which was acid, or which was not alkaline, did not take any, according to your experiment?

A. No.

Q. So, it was solely the alkali that seized the nitrites?

A. Yes.

Witness Excused.

W. R. M. Wharton, called as a witness on behalf of the government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Mr. Wharton, are you an inspector in the department of agriculture? A. Yes, sir.

Q. Bureau of chemistry? A. Yes, sir.

Q. Are you the gentleman referred to in the testimony of Mr. Krite, at the time of the introduction of these pipes which are marked exhibits 14, 15, 16 and 17? A. I am.

Q. Did you take any substances from the interior of these pipes that are in evidence, here, or any of them?

A. I took a substance from one of the pipes which was on the bleaching apparatus. It was one of these pipes that is here.

Q. The long pipe that is here was not in use at that
887 time, was it? A. No.

Q. But you took it from one of the pipes that had not been displaced? A. Yes, sir.

Q. And was still connected up? A. Yes, sir.

Q. Which pipe was it that you took it from? Describe its location in the bleaching plant.

A. It was a pipe that was standing straight up and down, just connecting with the tank in which the gas was stored, and it was so arranged that, at the bottom of it, this dust would accumulate; at the bottom they had a place to take it off, or let it out.

Q. Well, it was between the generator and the agitator?

A. Yes; between the generator and the agitator.

Q. Now, also between the agitator and the generator was a tank, of some size, through which the gas passed, and in which it was delayed in passage? A. Yes, sir.

Q. Now, which end of that tank was it?

A. It was between the agitator and the tank.

Q. And it was down at the bottom of a vertical pipe?

A. Yes, sir.

Q. (Gov. Exhibit 18 shown to the witness) Does that package contain some of the substance which you took from that pipe?

Mr. Scarritt: We object to that, if your Honor please. My sole objection is because it is clearly incompetent. The testimony is that that pipe has not been in use for over a year; was standing there, unused, for more than a year. The testimony of the proprietor of the mill is to that effect, and any dust, or anything else, taken from that pipe, a year afterwards,—a year after he ceased to use it,—could shed no light on any issue in this case, and we object to it, for that reason. It is too remote.

The Court: It seems to me that goes to the weight of it, and not the admissibility of it. Objection is overruled.

888 Claimants except.

A. This is the package that I took.

Mr. Butler: The package and contents are offered in evidence.

Mr. Scarritt: Same objection.

The Court: Same ruling.

Mr. Scarritt: Same exception.

The Witness: I might say that I turned this package over to Mr. A. V. H. Morey.

By Mr. Butler:

Q. That is the chemist at the head of the laboratory, here in Kansas City? A. Yes, sir.

Q. You turned it over to him for analysis and preservation? A. Yes, sir.

Cross-Examination

By Mr. Smith:

Q. Where was it you got this substance in the package held in your hand?

A. I got it out of the pipe which was just between the tank and the agitator.

Q. The pipe was not connected up?

A. Yes, sir, it was.

Q. Sir? A. It was.

Q. Well, was one connected with the agitator?

A. The pipe was standing horizontally, and there was a pipe leading into the side of that pipe, from the tank. Top of it was closed, and the bottom of it was closed, and there was two other places with valves leading out of this pipe,—three other places, into the agitator.

Q. Was this pipe in use?

A. It was in place, and this was—

Q. Was it in use? Was it performing any work there in the mill?

A. It was performing the work of holding the other parts of the apparatus together.

Q. Well, that is all, was it? There wasn't any water, or anything that way, passing through the pipe?

A. No water; no, sir.

889 Q. It wasn't being used for anything, in the operation of the mill? A. I don't know what you mean.

The Court: Oh,—no flour, or gas, or anything, going through it?

A. No, sir. It wasn't, at that time.

By Mr. Smith:

Q. The bleacher was not running? A. No.

Q. So, it didn't perform any office, then, in the operation of the mill? A. Not at that time.

Q. There were openings into it, were there, so the air could get in. A. No.

Q. They were all closed? A. Yes, sir.

Q. This pipe that has been offered in evidence, here—was that attached to it?

Mr. Butler: That long pipe?

A. The long pipe was not at that time.

By Mr. Smith:

Q. Now, how did you get this substance, which you have, here?

A. I took the cap off the end of the pipe, and took this substance out.

Q. How did you get it out?

A. It would run out very readily.

Q. When you took off the lower part of it?

A. Yes, sir.

Q. Perfectly dry, was it? A. Yes, sir.

Q. And it was being held in place by this little cap, at the bottom? A. Yes.

Q. When you took that off, it dropped out? A. Yes.

Q. If it had been taken out at any time before, it would have dropped out?

A. It was the habit to take it off and let it drop out, and it would fall out.

Q. Yes, it didn't adhere? When you took the cap off, the dust dropped out? A. Yes.

Mr. Scarritt: Now, we renew our objection to this
890 testimony, and move to strike out the testimony of the witness, for the reasons heretofore stated.

The Court: Overruled.

Mr. Scarritt: Save an exception.

Redirect-Examination

By Mr. Butler:

Q. I intended to ask, in direct examination, whether these pipes and irons that Mr. Krite referred to in his testimony, which are identified as exhibits 14, 15, 16 and 17, were procured by you from his mill? A. Yes, sir.

Q. At the same time, did you procure the contents of this package, which is marked Government's Exhibit 18?

A. Yes, sir.

Q. You say the pipe, 14, was not in use at that time?

A. No, sir; it was not.

Q. What about these valves, 15 and 16? Was either one of them in use? They were all attached to the bleacher. At the time of taking them out, Mr. Krite placed his initials on them, and I placed my initials on them, so I can identify them completely and certainly.

Recross-Examination

By Mr. Smith:

Q. Where did you find the pipe that is marked Exhibit 14—that is, the long pipe?

A. It was standing against the wall, near the agitator.

Q. Was it in use? A. No, sir.

Q. What part of the mill was it in?

A. It was on the second or third floor.

Q. Where is this mill? A. East St. Louis, Illinois.

Q. Over in Illinois? A. Yes.

Q. Down in the bottoms?

A. Well, I don't know what you mean by the "bottoms".

891 Q. How far from the river?

A. It is about sixteen blocks, I think, from the river, directly east.

Q. East of the river? A. Yes, sir.

Q. And what surrounds it? A. Houses and buildings.

Q. Other mills?

The Court: Factories, or packing establishments, or what?

A. It is more of a residence district. Well, it isn't exactly that. Railroads run through there.

The Court: Railroad Yards?

A. Yes.

By Mr. Smith:

Q. That is where it is? It was in the railroad yards, wasn't it? A. There's a number of residences.

Q. Railroad tracks around there, were there?

A. Tracks run into the mill, yes, sir.

Q. Switch tracks run back and forth, there?

A. Running to the mill, yes.

Q. Yes? Well, there are other tracks running past the mill, in that vicinity, are there not? A. Yes.

Q. A great many of them? As a matter of fact, the mill, there, is down in the railroad district, isn't it?

A. Not the railroad district proper, no, sir.

Q. Well, then, the railroad district "improper". Is that right? It is down in the business district of East St. Louis, isn't it?

A. It is a considerable distance from the business district. I should say it was three-quarters of a mile from the business district.

Q. How many railroad tracks run adjacent to the mill, or within close proximity to it? A. I didn't count them.

Q. A great many, were there?

892 A. I didn't count them, at all. I know there is a spur track that runs to the mill.

Q. And you know there are other tracks that run very close?

A. I know there are tracks a half mile from there.

Q. Well, don't you know there are other tracks close to the mill? A. No, sir; I do not.

Q. How many tracks were there, close to the mill?

A. I don't know.

Q. Couldn't count them? A. I didn't count them.

The Court: What he is getting at, was there a good deal of soft coal smoke in there? That is a soft-coal country?

A. I should say there was not.

Q. I say, that is a soft-coal country? A. Yes, sir.

Witness excused.

A. V. H. Mory, called as a witness on behalf of the Government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live, Mr. Mory? A. Kansas City.

Q. What is your occupation? A. I am a chemist.

Q. Are you employed by the bureau of chemistry, in the agricultural department of the United States? A. Yes, sir.

Q. In charge of the laboratory work in this building?

A. Yes, sir.

Q. Do you know Mr. Wharton, the last witness?

A. Yes, sir.

Q. Did you receive from him this paper, and its contents, which is marked Government's Exhibit 18? A. I did.

893 Q. Did you examine the contents, and analyze it, to find out what it is? A. Yes, sir.

Q. What is it? What does it contain?

Mr. Scarritt: We make the same objection, if your Honor please, that we did to the witness's testimony.

The Court: Objection overruled.

Mr. Scarritt: We save an exception.

A. It perhaps can best be described as a corrosion of iron, and differs from ordinary red iron rust, or that produced on iron, by contact with the air and moisture, in that it contains a quantity of nitric acid, in combination. I might express that more definitely by saying, if figured to HNO_3 , about $13\frac{1}{2}$ per cent, by weight. This, however, is undoubtedly in combination with the iron, in the form of basic nitrates. There is present

also, oxides, or hydrated oxides of iron, together with this substance that I have described.

Q. You may show the substance to the jury, if you can open the package without spilling it, and tie it up again.

Mr. Scarritt: Same objection.

The Court: Same ruling.

Mr. Scarritt: Same exception.

(Exhibit handed to jury as directed.)

A. I would say that the substance was not quite so finely powdered, as given me, as it is now; that I ground it in the mortar, in order to get a better sample.

By Mr. Butler:

Q. Now, HNO_3 is nitric acid? A. Yes, sir.

Q. Now, if you express the same thing in terms of NO_2 , required to produce nitric acid—

A. (interrupting) From close to 10 per-cent of NO_2 , by weight.

Q. 10 per cent?

A. I might also add that the oxides of iron existing with the nitrates would naturally be formed by the action of electrolytic action, resulting from the presence of NO_2 , or nitric acid and moisture.

Q. These things that you speak of are such as would
 894 be produced by nitric acid coming in contact with the inside of the pipe? A. Yes, sir.

Cross-Examination

By Mr. Smith:

Q. This package contains a slight amount of iron rust, does it?

A. It might be called that, but not what is commonly called iron rust; no, sir.

Q. Well, it is an iron rust, isn't it, in combination with something else?

A. It [—] corroded iron, corroded in the manner I have described.

Q. And by that you mean small particles of the surface of the iron that have become rusty, and detached?

A. It had that appearance.

Q. Now rusty iron is not an unusual thing to find, in different places? A. Not at all.

Q. And what was there in combination with this rust?

A. Nitric acid.

Q. Nitric acid? In what relative proportions?

A. I stated that the quantity, figured to HNO_3 , nitric acid, was $13\frac{1}{2}$ per cent, by weight.

Q. $13\frac{1}{2}$ per-cent of this you had in here would be what?

A. HNO_3 , nitric acid.

Q. And what would be the balance?

A. Well, the rest of it is iron oxide, and hydroxide, in combination, as I expressed it.

Q. You would get $13\frac{1}{2}$ per-cent of it, would be HNO_3 , then there would be $86\frac{1}{2}$ per-cent, would be what?

A. The iron, oxygen and hydrogen necessary to make the combination described.

Q. Iron, we understand what that is. Oxygen is a constituent element of the air, is it? A. Yes.

Q. And hydrogen is a constituent element of water?

A. Yes.

895 Q. So you would have some iron, and some air, and some water, what else? Would that make up the $86\frac{1}{2}$ per-cent? A. Yes.

Q. So, you have got $13\frac{1}{2}$ per-cent HNO_3 , that is combined with a certain amount of iron, a certain amount of air, a certain amount of hydrogen, or a constituent element of water.

A. I neglected to state, about $2\frac{1}{2}$ per-cent of carbonaceous matter.

Q. What is that?

A. Possibly graphite that is combined with the iron. Almost a neglected quantity, that I didn't state.

Q. But this is a fair statement of the composition of the substance you have got there? A. Yes, sir.

Q. $13\frac{1}{2}$ per-cent HNO_3 , and $86\frac{1}{2}$ per cent, iron, oxygen, and hydrogen? A. Yes, sir.

Q. And did you use the entire quantity?

A. No, I didn't.

Q. Well, as the witness brought it in to you, did you measure the entire quantity?

A. I did not. I did not consider that an important point, and it didn't occur to me to do so. The amount isn't greatly different from what you have there. Perhaps diminished by one-quarter.

Mr. Smith: Was this offered in evidence?

Mr. Lyons: Yes, sir.

Witness Excused.

896 E. H. Grandberry, called as a witness on behalf of the Government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live, Mr. Grandberry?

A. Junction City, Kansas.

- Q. What is your business? A. Milling.
- Q. How long have you been a miller? A. 35 years.
- Q. Are you the proprietor, or one of them, of the mill?
- A. Operative miller. Employed as a miller.
- Q. In what concern? A. Hogan Milling Company.
- Q. At Junction City? A. Yes, sir.
- Q. How long have you been there? A. About a year.
- Q. And before that, where were you employed?
- A. Abilene, Kan.
- Q. By what milling company?
- A. Security Milling Company.
- Q. How long were you there? A. Close onto a year.
- Q. Prior to that, what experience did you have?
- A. Cramer Milling Company, Anthony, Kansas.
- Q. That is the same Cramer who used to be at Wellington, Kansas? A. Yes, sir.
- Q. Have they mills in both places? A. No, sir.
- Q. But they used to have? A. Yes, sir.
- Q. They sold out at Wellington to the Actua Mill & Elevator Company, I believe? A. Yes, sir.
- Q. How long were you there with Cramer brothers?
- A. I was with Cramer brothers 7 years.
- Q. Have you ever used an Alsop bleaching machine?
- A. I have used an Alsop bleaching machine about a year and a half, I think.
- Q. Where? A. At Anthony, Kansas.
- Q. That was while you were working for Cramer brothers?
- A. That was while I was connected with the Cramer milling Company, at Anthony, Kansas.
- 897 Q. Does this mill where you now work, bleach?
- A. No, sir.
- Q. Did they ever, so far as you know?
- A. So far as I know they never bleached.
- Q. The mill isn't fixed for bleaching? A. No, sir.
- Q. What is the effect upon the color, of treating flour by the Alsop process? A. You mean the color?
- Q. Yes, sir.
- A. Well it has the effect or tendency to make it whiter.
- Q. The bleaching of a straight flour, or a long patent flour, produces what color, in comparison with a short patent, or good, patent flour?
- A. Well, I hardly think that I could define the difference. It seems to be about the same—are the same.
- Q. Now, before they are bleached, is there any difference between a short patent and a straight flour?
- A. Before it is bleached?
- Q. Yes. A. Yes, there is quite a difference.
- Q. Now after bleaching, is the difference more, or less?

A. Yes, there is quite a difference.

Q. Does bleaching tend to make a straight flour look like a patent? A. I would say yes.

Q. Now, as to the effect of natural aging. What is the effect of bleaching upon fresh flour, with reference to producing an appearance like naturally aged flour?

A. Well, I hardly think it has the same appearance, in the way of bloom and life, and color.

Q. Has naturally aged flour the same, or different color, of that flour before natural aging?

A. Comparing the two, there is a difference.

Q. Now, as to the bleaching. Does the bleaching make the fresh more like naturally aged, before the bleaching, or less?

A. I think not.

Q. You think it does not bring them nearer together?

A. Not to my judgment.

898 Q. Are you familiar with what is known as "patent" flour?

A. Well, as a term used for distinct, patent flour, I know what that is,—what we call a patent flour,—made of middlings.

Q. Are you familiar with Turkey hard wheat? A. I am.

Q. Did you hear the testimony of Mr. Tucker who made this flour? A. Yes, sir.

Q. You are familiar with the term "patent", as it is used in the trade, and by millers? A. Yes, sir.

Q. You heard him describe his yield, did you?

A. Yes, sir.

Q. And the quality of wheat used? A. Yes, sir.

Q. Now, I will ask you, in your opinion, whether or not there could be made from the wheat, 4 bushels and a half of the wheat he had, counting 59 pounds to a bushel, his 90 per cent flour, or fancy patent?

A. I wouldn't consider it a fancy patent.

Q. Do you know what effect the bleaching of flour has upon the quality of the flour—its dough, and the like?

A. To a certain degree, I do, for my own particular use.

Q. Have you doughed the flour? A. I have.

Q. What effect does it have upon it?

A. It has a tendency to weaken the flour, or weaken the dough.

Q. Now, as to the strength of that tendency, if it is strongly bleached, heavily bleached, does it weaken more than if only lightly bleached? A. That is my observation of it.

Q. Do you know whether bleached flour improves with age?

A. From just my observation and study of it, I think that it degenerates—it goes back.

Q. Does it work that change after it has been bleached, or does it remain fixed?

A. Well, to a certain degree it does change, just a little bit. It degenerates, and, naturally, in that state, it is more dead than it was right at the time it was bleached.

Q. What effect upon the color has this change or degenerating as you call it? A. What effect?

899 Q. What effect does it have upon the color—the change in color, by this degeneracy?

A. I would say slightly lacking in the life of the color of the flour. It is more ashy and deadly.

Q. How long, altogether, have you milled, in Kansas?

A. I am 52 years old, and I came to Kansas when I was about 22.

Q. You have milled in the State of Kansas ever since?

A. No, I milled in Colorado for about 4 years.

Q. Now, which wheat makes the whiter flour—the soft, winter wheats, or the hard winter wheats, each being milled for the purpose of making white flour?

A. I understand. The softer natured wheat always makes whiter flour than a harder natured wheat.

Q. A soft wheat? And is that true of the Turkey hard wheat, and the wheat of Missouri, southern Illinois and Iowa?

A. The softer the nature of the wheat always makes a whiter wheat.

Q. Have you had opportunity to observe which makes the whiter flour, the hard turkey wheat, of Kansas or the spring, hard wheats of the north and northwest?

A. The hard turkey wheat of Kansas makes a whiter flour than the hard wheat of the northwest.

Q. Can you tell us, generally, whether or not this bleaching process makes a flour appear to be of higher grade, or standard, than it is, in fact?

Mr. Smith: I object to that, as leading and suggestive, no proper foundation has been laid.

The Court: He may answer.

Mr. Smith: Exception.

The Witness: Will you repeat the question?

(Last question read)

A. Just from observation, without any comparison, it does.

By Mr. Butler:

900 Q. That is what you mean, when you observe it, without bringing it into comparison with some standard?

A. Yes, sir.

Cross-Examination

By Mr. Smith:

Q. What do you mean by a "fancy patent"?

A. Well, I don't designate mine by "patents".

By Mr. Butler: Mr. Smith, there was one more question I wanted to ask.

Redirect Examination

By Mr. Butler:

Q. Have you ever observed flour that was overbleached by the Alsop process? A. Not to the extent—

Q. (Interrupting) I mean to the extent of becoming yellow? A. Yes.

Q. How does that happen? To what extent did it require bleaching?

A. Well, it is accumulation that would probably gather in the flow of the mill, and it seems to have that yellow appearance of the color, and I judge from that it is overbleached, because you never get that cast. I never got that cast in any other conditions, only bleaching flour.

Q. Except when you are bleaching, you have never found that yellow flour? A. No, I never found that yellow.

Q. Now, did you ever observe whether or not that yellow flour, or that flour made yellow by bleaching, goes into the merchantable flour? A. Yes, it will.

Q. Tell us about that, and how it is that happens. I am now speaking of the Alsop process.

A. Well, I will say, if I may be permitted to state just exactly how it happened—

Q. I think that is the best way; yes.

A. We put in the Alsop bleacher, and I was ignorant, and didn't have the proper knowledge of knowing how to manage that machine, so, it was recommended to me, or represented to me, that there was no trouble, at all, about handling that machine that just to start it up, and let it go, and it would do the work it was required to do. In the course of a month or two, I had a complaint on my flour, and, on investigating what this trouble was, I found that some particular customers, or one customer, especially, had found what I term a "dough-ball"—a little ball that was created from moisture of some kind, and rolled up and formed a ball, and in sieving out this flour for making bread,—it was a wire sieve with a centrifugal beater—it busted this "dough-ball". The centrifugal beater busted this "dough-ball", and it had such a bad odor that the lady made complaint of the flour being wrong. There was something matter with it, and on investigating, I found that the accumulation of moisture, or different objects,—I don't know what it is,—had gotten into the agita-

tor, or blender, or the mixer, and through the mixer into the flour sack, and that's the first complaint I ever had of the bleached flour.

Q. Tell us whether or not that is a frequent occurrence that these balls will form in the flour, by this overbleaching?

A. Well, I aimed to remedy that, by putting in a little reel or separator, whatever you call it, something to bolt those formations out of my flour before it went to the sack.

Q. That is, after it had passed the agitator?

A. After it had passed the agitator. I was compelled to put in something to purify the flour, after it had passed through the agitator.

Q. Purify it in what way?

A. Purify it, or bolt it, or separate it, or sift out the impurities that accumulated in the agitator, into the flour sack. Sifted it. Separated that.

Q. Describe those things that accumulated in the agitator from bleaching?

A. It was a formation created, I suppose, from moisture, and the flour coming in contact with that moisture would form a ball—stick, and form a ball, and in that way it would retain its shape, as a little marble, and go into the
902 sack in that condition, and stay in that condition until you would put some pressure of some kind, or some method of breaking it open.

Q. Now, what was the color of it, when broken open?

A. I am not very much of a hand on color. It was something like that chair, there—the color of that chair, there, whatever you would call that.

Mr. Smith: Light oak?

By Mr. Butler:

Q. Brown? A. Kind of a brown, yes.

Q. And the character of the ball, now, as to smell, and taste? I don't mean how much, but I mean the smell and taste of it, if you know?

A. Well, it had an odor that we got from the effects of this arc and flame that we got from this bleaching.

Q. That is, in the gas generator? A. Yes, sir.

Q. Did you ever taste it?

A. I didn't want to, but I got a little on my lips, putting my mouth to the pipe. I didn't know what it was, and I put my mouth down to the pipe, to blow some little accumulation out of there, that was in the valves, and I got some on my lips, and it tasted very bad.

Q. Now, I want to get at the number of these that would accumulate. You say you tried to screen them out?

A. Yes, sir.

Q. Now, about how many of these would accumulate?

A. Oh, not very many.

Q. About how many?

A. Oh, just now and then? I never stopped to measure them, or anything of that kind. It was only just an accumulation of that kind of stuff that I wanted to keep out of my flour sacks.

Q. Now, was that the only Alsop bleacher that you ever worked about? A. Yes, sir.

Cross-Examination

By Mr. Smith:

903 Q. Now, going back to the question I put. What do you mean by a "fancy patent"?

A. I don't know what "fancy patent" means.

Q. So, you are not able to define it? You don't know what kind of flour it takes to make a "fancy patent"?

A. Well, the word "fancy patent" is a pretty broad assertion.

Q. Well, we have learned that since we have been here.

A. Yes. It is pretty broad.

Q. Depends on the miller, don't it?

A. Well, it wouldn't be—I don't know how to define a "fancy patent", only in one way.

A. Well, what way is that?

A. That would be by percentage.

Q. Did you ever work in any two mills that had the same percentages? A. Yes, sir.

Q. What two?

A. Aetna Mill Company, of Wellington, Kansas, and the Anthony Mill Company, Anthony, Kansas.

Q. What were their percentages?

A. From 80 per cent. 80 per cent.

Q. From 80 to what?

A. Patent, middlings flour.

Q. You said 80 to what?

A. Oh,—100 per-cent. I always make that on a basis of 100.

Q. You don't mean they made a patent running from 80 to 100 per-cent? A. No, sir.

Q. Within what limits did their patents vary?

A. Our patent flour was an 80 per-cent patent. Then, we made three grades of flour, you understand.

Q. How many grades of patent did you have?

A. I had one patent flour, 80 per-cent.

Q. Well, did you put out different grades of flour, that were branded a patent, and have some name connected with it, as "first patent" or "second patent", or something that way?

A. No, sir.

Q. What did you call your patent?

A. The patent that I am making now is the "Best Yet".

Q. And you brand the "Best Yet" as a patent, do you?

A. Yes, sir.

Q. What per-cent do you put in?

A. 70 per cent.

904 Q. When you were at Wellington, making the 80 per cent. What did you call that? How was it branded?

A. That was "Cramers High Patent", I think.

Q. And that had 80 per cent, did it? A. Yes, sir.

Q. Now, what was the difference between your 80 per cent, and your 70 per cent? A. There was 10 per cent.

Q. Well, that is in figures, but was there any difference in the quality of the flour? A. Yes, sir.

Q. How do you come to make 80 per cent one of them, and 70 the other?

A. It is according to our standard to mill.

Q. Now, where else did you work? I didn't take down all these places?

A. Colorado Milling & Elevator Company, Colorado.

Q. And what per cent did you make, there?

A. We made a 90 per cent, there.

Q. Patent? A. That was a straight flour.

Q. Well, I am talking about patent flour, now.

A. No. I hardly think, those days, the days I was with these people, there wasn't any such thing as a patent flour, then.

Q. You didn't make just the 90 per cent straight, did you?

A. Yes.

Q. Straight flour takes in all the run of the flour, don't it?

A. No, sir.

Q. Except the tailings?

A. In that section what is called a "Red dog".

Q. Yes. Straight flour takes in everything but the Red Dog? A. Yes.

Q. And you just run 90 per cent in the straight, and 10 per cent into the "Red Dog"? A. Yes, sir.

Q. But did you sell the Red Dog as flour?

A. That was mingled with the feed product, in the mill.

Q. Then, the fact is, these different places you worked, you had different standards of patent?

A. Some places 70 and some places 80; yes.

Q. And did you make that 80 per cent at the mill, irrespective of the kind of wheat you got? A. No, sir.

905 Q. Then it varies with the quality of the wheat?

A. I have a standard, with my wheat, the same as I do with my flour.

Q. Now, you spoke of the different kinds of wheat. Have you had any experience milling Nebraska wheat?

A. Some; yes.

Q. How long since? A. A year and a half ago.

Q. Where was it raised?

A. Really, I can't tell you just exactly where it was raised.

Q. Now, in the different grades of wheat, as you get, do you grade them simply according to the wheat? A. Yes, sir.

Q. Now, in your section of the country, do you get a strictly turkey red? A. No, sir.

Q. You don't get any of that? A. No, sir.

Q. Do you get any number 1 wheat, at all—what grades as number 1, hard? A. No, sir.

Q. None at all? A. I get about 20 per cent.

Q. How many pounds to the bushel does that weigh?

A. That No. 1 isn't graded in Kansas, now, understand.

Q. Then you don't have anything in Kansas that is graded Number One? A. No, sir.

Q. Where did you get it?

A. I get a grade that is superior to a No. 2 Kansas hard wheat.

Q. Where did you get it?

A. In the western part of the state.

Q. But it is graded No. 1, or No. 2?

A. It is graded as No. 2.

Q. So, as a matter of fact, No. 2 hard wheat is the highest grade of wheat on the market in the State of Kansas, isn't it?

A. Yes, sir.

Q. The highest wheat which you get is graded as No. 2?

A. Yes, but I pay a premium for a superior, hard, turkey wheat.

Q. All right. That weighs how many pounds to the bushel?

A. 60 pounds.

Q. That which grades No. 2 on the market, and it sells at the elevators, and in the open market, for No. 2, includes wheat that weighs how much? A. 59 pounds.

Q. So, on the market, and in the trade, as it is understood, wheat which weighs 59 pounds to the bushel, is No. 2 hard wheat, is it?

A. Reasonably clean, dry, plump, sound wheat.

Q. And that is the highest grade known to the trade, isn't it? A. That is, in Kansas.

Q. In Kansas; yes, sir. A. Yes, sir.

Q. Now, is it an unusual thing for a miller to sometimes find in his flour a defect? A. Oh, quite frequently.

Q. And you do that, whether you have got a bleacher or not, don't you? A. Well, now, let's see—

Q. (Interrupting) You found defects in flour, before you ever heard of a bleacher, didn't you? A. Well, yes; I have.

Q. Millers haven't reached the point where they are absolutely perfect in anything, have they?

A. No. There's no one perfect.

Q. And as long as you mill by machinery, there will be defects, because of defects of the machinery, or because of some little accident or something, there will be some defect in the flour, won't there? A. Likely so; yes.

Q. Did you ever hear of a "dough-ball" before you had a bleacher? A. Quite frequently.

Q. You have found "dough-balls" in flour before you had a bleacher, didn't you? A. Yes, sir.

Q. What do you mean by a "dough-ball"?

A. Well, a "dough-ball" is created from moisture coming in contact with the flour.

Q. And you have had flour coming in contact with moisture, before you ever heard of a bleacher? A. Yes.

Q. And those "dough-balls" are not a desirable thing, in any flour? A. No, sir; not a bit of it.

Q. If a housewife finds a "dough-ball" in the flour, you always hear from it? A. Sure.

Q. Because that is a defect in the flour? A. Yes, sir.

Q. Now, you had "dough-balls" in the flour before you ever heard of a bleacher? A. Yes, sir.

907 Mr. Smith: That is all.

Redirect Examination

By Mr. Butler:

Q. Were these the same kind of "dough-ball"?

A. Not quite.

Q. They didn't taste the same, or smell the same?

A. Not quite, Brother Butler.

Witness excused.

Court thereupon adjourned to 10 o'clock a. m. Saturday, June 11, 1910.

Saturday morning, June 11, 1910.

Pursuant to adjournment, Court met at 10 o'clock a. m., Saturday, June 11, 1910, and proceeded with the trial of said cause further as follows:

C. H. Barnard, called as a witness on behalf of the Government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Your name, please? A. C. H. Barnard.

Q. Where do you live? A. At Wellington, Kansas.

Q. And your occupation? A. A miller.

Q. How long have you been a miller?

A. About 33 years.

Q. And where?

A. I worked under my father, in Illinois, until I was 23. I then took charge of a mill.

908 Q. Have you had charge of a mill all the time since then? A. Yes, sir.

Q. And where are you now? A. Wellington, Kansas.

Q. What mill? A. Hunter Milling Company's plant.

Q. Is there more than one mill at Wellington?

A. Three.

Q. And what are their names?

A. Aetna Milling Company, the Wellington Mill & Elevator Company, and the Hunter Milling Company.

Q. Have you ever used a bleaching process in any mill of which you had charge? A. I never have.

Q. Did you ever make any investigation of bleaching processes for the purpose of enabling you to determine whether or not you would install one in the mill in your charge?

A. I did.

Q. When was that?

A. I think it was about four years ago,—in 1906.

Q. What did you do in that regard?

A. Well, I took two sacks of flour, and took one over to the Aetna Mill, and had one sack bleached, and took them both home.

Q. Was there a bleacher in the Aetna Mill? A. Yes, sir.

Q. What kind? A. Alsop.

Q. Well, go on, and tell us what you further did, with reference to that flour?

A. At the time I commenced the investigation, my company was thinking strongly of—

Mr. Scarritt: (Interrupting) Never mind what the company was thinking. We object to that, Your Honor.

The Witness: (Continuing) Installing a bleacher.

Mr. Scarritt: That isn't responsive to the question.

The Witness: Well, I was thinking strongly of installing a bleacher.

Mr. Smith: Well, that is the same thing; we object to that.

The Court: He says what he means was, he was considering the proposition, and investigating it. I don't know.

The Witness: That's it.

909 The Court: I suppose you object to the word "strongly".

Mr. Butler: No,—“thinking”.

Mr. Scarritt: He said he was “thinking”.

The Court: Well, all right.

The Witness: And to ascertain, if possible whether we should put in a bleacher, or not, I had this flour bleached, took it home, and had my wife bake it. I didn't like the—

Mr. Smith: Well, I object to his stating his likes and dislikes, as being wholly immaterial.

The Court: Yes, you will have to state what you found.

The Witness: Well, I baked a loaf of bread out of the unbleached, and baked a loaf out of the bleached.

By Mr. Butler:

Q. Same kind of flour, except that one was bleached by the Alsop process, and the other wasn't? A. Yes, sir.

Mr. Scarritt: In that mill?

The Court: In the Aetna mill, at Wellington, Kansas, as I understand it.

The Witness: I had it bleached there, but the flour wasn't made there. I made it, myself.

The Court: The flour was made in your mill?

The Witness: Yes, sir.

The Court: Bleached in the Aetna?

The Witness: Yes, sir. And the loaf of bread made from the bleached flour was no whiter than the one made from the unbleached. The odor from the bread was disagreeable.

The Court: In which loaf?

The Witness: The bleached. A short time afterwards, I took a sack of flour, and went to the Howard mills, in Wichita.

By Mr. Butler:

Q. A sack of flour which you made?

A. Yes, sir. They were not in position, at that time,—
910 too busy—to bleach it for me. In lieu of that, they gave me a half a sack of their unbleached flour, and a half sack of their bleached flour. I brought that home, and made the same test, and found the same results.

Q. As you did in the case of the other flour, bleached at the Aetna Mill & Elevator Company?

A. Yes, sir. After a few weeks I took two sacks of flour to the Wellington Mill & Elevator Company, had one of them bleached, took them both home, baked them, and found the same results.

Mr. Scarritt: Was that your own flour?

The Witness: That was my flour.

By Mr. Butler:

Q. Same kind of flour that you tried the first time, at the Aetna mill and elevator company?

A. Yes, sir. The three trials were the same grade of flour, that I made myself, but bleached on three different systems.

Q. What were they?

A. The first one was the Alsop, and the second one a bleached named the Werner, Mr. Larabee, at Stafford, was selling the machine, and the one at the Aetna was the Naylor & Girard.

Q. What kind of flour was it, that you made, yourself?

A. Patent flour.

Q. And what percentage? A. 75 per cent.

Q. That is, 75 per cent of the total flour produced from the wheat? A. 75 of 100.

Q. Did you, in these instances, observe any comparison between the quality of the dough, as it was doughed up, of the one, compared with the other? A. Yes.

Q. What did you observe in that regard?

A. Well, the dough from the bleached flour wasn't as elastic as that from the unbleached. It appeared to be short.

Q. Did both the other mills at Wellington bleach?

A. They had been bleaching for several years. I don't know that they do, now.

911 Q. I mean, at this time?

A. No, I don't know that. They have the bleachers in their mill, but I don't know as they bleach.

Q. What is a patent flour, Mr. Barnard?

A. It is a purified middlings flour.

Q. How much of such purified middlings can be obtained from the hard wheat?

A. 80 per cent is the maximum. Possibly, in some instances, a half of one per-cent more.

Q. Can there be 90 per cent of such middlings procured?

A. No.

Q. Can you tell us, historically, how the phrase "patent flour" came to be used?

A. Well, sir, prior to about 35 years ago, millers, all over this country, in milling on the stone system, had to store their middlings. In those times we called it "shorts". And, when

they got their bins that they had for storing that middlings full, they would simply shut off the wheat, and grind those middlings, by themselves, on the stone, and then they would take the flour that they got from that middlings, and feed it into the regular run of the mill, when they was grinding wheat again, and, as long as that lasted, that flour, they found their flour was better.

Q. That is, the flour produced by grinding the shorts over again, when added to the flour first produced from the wheat, improved that, and they counted it better?

A. Yes, sir. Then, the middlings purifier was invented and put on the market, and we went to purifying that middlings, or that short, and grinding it on a separate stone, and mixing it in, and then, finally, we got to taking that out—that middlings flour—and putting it into a sack by itself, for the simple reason it was better flour, and millers simply called that “a patent flour”, because it was made on a patent purifier. That is, the middlings were, properly. We then set our wits to work to make more of that middlings, and, in the beginning, we only made about 15 per cent of that patent flour, and we kept improving our systems, and finally put in the rolls, which enables us to make enough middlings that we could purify, and these purifiers make as high as 80 per cent, and I am
912 sure that there is no mill in the United States that has ever made more than that out of purified middlings. Don't believe it can be done.

Q. What is a “straight” flour?

A. Straight flour? Well, we make a straight flour that is 97 per cent. It runs from 95 to 97 per cent of the whole.

Q. What do you call the remnant?

A. We call it low grade. Some millers call it “red dog”.

Q. And, in your mill, is that remnant,—3 to 5 per cent of low grades—is that sold as flour?

A. That is sold as flour; yes, sir.

Q. And what do you call it?

A. Call it flour. Don't call it anything. Just put the word “flour” on the sack. Put it up in 140-pound jutes.

Q. Have you had opportunity to observe the color of different grades of flour, from the same wheat—that is, short patent, and the long patent, and the straights, and the clears, and the low grades? A. Yes.

Q. What is the relation of color? What does color indicate with respect to that?

A. Well, it doesn't always indicate quality for the reason that our 75 per cent is much more yellow than a 22 per cent clear. That is, as it appears in the dust, under the slicker. And our straight grade has a whiter appearance than our 75

per cent patent. Our low grade, of course, in all cases, is darker than any of them.

Q. That contains some foreign substances—the low grade?

A. Yes, sir.

Q. 3 to 5 per cent low grade? A. Yes, sir.

Q. Now, have you been able to observe the change, if any, in color and quality, that takes place in flour that is naturally aged?

A. Oh, yes. When it happens to be stored in a warehouse, after four or five weeks, or longer, it gets whiter,—
913 gets more mellow; puts it in a condition for absorbing more moisture, and improves with aging.

Q. In what respect, when you say it “improves”?

A. Well, in the respect it will take more water, and is easier worked.

Q. And with respect to the quality of the gluten, or elasticity of the dough? A. Well, it makes that better.

Q. Elasticity of the doughs increase?

A. It improves the elasticity, and the expansion of the gluten is greater; shows it improves the strength of it.

Q. The color is lighter, and the gluten more expansive?

A. Yes.

Q. The dough more elastic?

A. Yes, sir. That has been my experience.

Q. And the dough takes more water, in the baking process?

A. Yes.

Q. Now, the effect of bleaching on the new flour, upon its color, as compared with the change wrought by aging and conditioning?

A. You mean flour from new wheat, or just fresh made flour?

Q. Yes.

A. Well, it whitens it, and yet it isn't the same white as it is where it is naturally aged.

Q. Does it bring the color nearer together?

A. Oh, yes.

Q. And the effect of bleaching, upon the gluten, and bread-making qualities, doughing, and the like?

A. Well, I am not prepared to explain that, Mr. Butler, because I am not a baker.

Q. Have you, aside from these occasions when you were investigating the bleaching processes, had opportunity to observe the different grades of flour that had been bleached?

A. I have taken no further notice of the bleaching proposition, since, any more than I come in competition with it.

Q. Yes. That is what I mean. And, in your work, in selling your flour, and competing with others, and all,
914 have you had opportunity to see bleached flours, from time to time?

A. Yes, I have seen it.

Q. That is what I meant. And have you seen bleached flour, of brands with which you are familiar, and made at mills where you are familiar with it? A. Yes.

Q. What mills?

A. Well, the two mills at Wellington; mill at Arkansas City, Carthage, Missouri; mill at Nevada—not Nevada, but Newton, Kansas, and I have seen it here in Kansas City—Kansas City, Kansas. But it never bothered us, and we never took any further notice of it in our business.

Mr. Scarritt: I understood him to say he had seen that both in Kansas City, Missouri, and Kansas City, Kansas, or did he change it?

The Witness: Just Kansas City, Kansas.

By Mr. Butler:

Q. Were you familiar with the output of the Aetna Mill & Elevator Company, when they were using the Alsop process?

A. Yes, sir.

Q. Have you seen their flour, bleached? A. Yes, sir.

Q. And were you familiar with it, unbleached?

A. Yes, sir.

Q. What was the effect of the bleaching, upon the appearance of the flour? A. Well, it made it look much whiter.

Q. During the time they were bleaching, what did you do with your clears?

A. We sold a good deal of it to them.

Q. What brands were they putting out, at that time?

A. Well, they call it "Silk".

Q. "Aetna Silk"? A. Yes. "Aetna Silk".

Q. High patent? Is that the brand?

A. That's the way they had it marked.

Q. And the clears that you were selling to them, there, was that which was taken out, after your patent was taken off?

A. Yes.

Q. And you were taking off how much patent, at that time?

A. 75 per cent.

Q. 75 per cent? And leaving 22 per cent, or such a matter, clear? A. Yes, sir.

Q. And that you sold to the Aetna Mill & Elevator Company?

A. We didn't sell it all, but some of it. We sold them quite a lot of it.

Q. How far apart were your mills?

A. About 12 or 15 blocks, something like that,—probably 15 blocks.

Q. And where was the flour which you sold to them delivered? At their mill, or to their customers?

A. I delivered it to the mill.

Q. What is a "stuffed straight", if there is such a thing?

A. Well, as I said, we get 95 to 97 per cent straight grade. If a man can add any clear flour, or any other flour, and run it up to 110 or 120 per cent, he has got that straight stuffed with something else.

Q. That is, if you take all of the flour content of the wheat, and then procure from some other place some other flour, and add it to that, it is a "stuffed straight"?

A. Yes.

Q. Now, in the case of bleaching of such flour. Could it be made to resemble, as respects color—I don't mean exact identity—but could it be made to resemble patent flours, as respects color? A. Oh, yes.

Mr. Helm: He is speaking of a clear, is he not, Mr. Butler?

Mr. Butler: He is speaking of a "straight stuffed", where you take straight, and add a clear from somebody else's, and put it into the straight and bleach it, and that it can be made to resemble a patent flour.

Q. Now, generally speaking, what is the effect of bleaching, upon varying grades and colors of flour, as to whether it tends to make them look alike, or tend to make the appearances more widely different?

A. Well, you bleach the patent. You don't have to bleach the clear flour as much as you do the patent flour, to
916 make them look alike, for the simple reason that most good mills, 22 to 25 per cent of clear is naturally whiter—looks whiter than the patent.

Q. Not so much creaminess in the color?

A. Not so much creaminess in the color, and, for that reason, as I understand it, they don't bleach clears so heavily as they do the other—the patents. And, by doing that, and then blending them, they make them look whiter [that] the patent or the clear, either one.

Q. Tends to bring the colors together? A. Yes.

A. And make all lighter?

Mr. Butler: I think that is all.

Cross-Examination

By Mr. Smith:

Q. What is the capacity of your mill, Mr. Barnard?

A. 1500 barrels.

The Court: In 24 hours?

A. Yes.

By Mr. Smith:

Q. That is your daily capacity. What, as a matter of fact, do you run? To its full capacity?

A. Well, not all the time.

Q. Well, say, during the last year. About what has been your average daily output?

A. About 1,000 barrels.

Q. What was it the year prior to that?

A. Well, it was more than that, the year prior to that.

Q. About what was it, that year?

A. From 11 to 12 hundred, something like that.

Q. 11 to 12 hundred? What was it the year before that?

A. I don't remember, the year before that. That would be about 1906. That year we increased our capacity.

Q. No, last year was 1909, the year before that 1908, and that would be 1907, wouldn't it? In 1907, what would it be?

917 A. I judge, in 1907, about 900 to 1,000, the average.

Q. Then, last year it was just about the same as it was two years ago? A. Yes, sir.

Q. The year in between them, it was more than that?

A. Yes, sir.

Q. You never bleached flour, you say?

A. Never did.

Q. The other mills there in Wellington both bleached, didn't they? A. Yes, sir.

Q. Had the bleacher during the last two or three years?

A. Yes sir.

Q. Now, when you made these samples of the different flour, and took it to your home and baked it into bread, the odor, you said was—I believe you said “disagreeable”? Was that the word you used? A. “Disagreeable”.

Q. Very much so? A. Very much so.

Q. What did it smell like?

A. Well, I don't believe I can describe the smell.

Q. Was it offensive?

A. It was offensive to me, and to my wife.

Q. Offensive to everybody who would smell it?

A. Everybody who was in the house. Nobody but my wife and I were there.

Q. Now, it is true, is it not, that the other mills in Kansas who have put out bleached flour, the last two or three years, branded it “bleached”, haven't they—indicated right on the bag that it was bleached, didn't they?

A. I never saw a sack of flour in my life where it said it was bleached on the sack.

Q. Isn't it true that bleached flour, in Kansas, now, is so labeled?

A. I don't believe it is.

Q. It was well known in your town that those mills were bleaching, wasn't it? A. I believe it was.

Q. Known to everybody? A. No.

Q. It was a matter of common knowledge, in your town, that the other mills were bleaching, and that your mill was not, wasn't it?

918 A. No.

Q. Didn't you just say it was?

A. Well, it was generally known among the business men, that the other two mills bleached flour, and that we didn't.

Q. All right, it was generally known among the dealers, there? A. Yes.

Q. Now, if this other flour, when baked, gives off such an offensive odor, and your unbleached flour doesn't, how does it come they continued in business, when they could get your unbleached flour?

A. Well, sir, they sold their flour outside, like other mills who bleach flour.

Q. Don't you sell yours outside, too?

A. We sell ours outside, but we control the Wellington trade—the bakers and merchants.

Q. And yet your trade, last year, ran down from 11 to 12 hundred barrels a day to 900 barrels a day?

A. It wasn't because we couldn't sell the flour. It was because we couldn't get the wheat.

Q. How was their trade? Do you know?

A. Same way. We ran more than either one of the other mills.

Q. If this bleached flour gives off such an offensive odor, couldn't the housewife discover that? A. Mine did.

Q. How long do you think a housewife would continue to use flour that gave off an offensive odor when she baked bread from it?

A. Well, some people don't take any notice of that;—I judge they don't.

Q. Well, this odor was so offensive and disagreeable that they couldn't help but take notice of it?

A. There's quite a difference in people. There's quite a good deal of catarrh in this country.

Q. Don't you think that an odor that would be offensive to some people, might be agreeable to others?

A. I don't know about that.

Q. What is your judgment about that? All people don't have the same taste that you have? A. No.

919 Q. Then don't you think that an odor that might be offensive to you, might be agreeable to some people?

A. Yes.

Q. And don't you think that an odor that was agreeable to you might be offensive to some people? A. Yes.

Q. Well, then, an odor that you might regard as disagreeable, other people might regard as pleasant?

A. I couldn't say as to that.

Q. Well, you might think bleached flour was disagreeable, and others might think it pleasant? A. Yes, possibly.

Q. That's a matter of taste? A. Yes.

Q. So that something that smells good to you, might smell bad to somebody else?

A. That's the case to some extent, I presume.

Q. We don't all have the same idea of what is an agreeable odor, any more than we have the same idea of what is an agreeable taste? A. Oh, no.

Q. Some people like to eat certain articles of food, or certain fruits, that other people don't like at all, and what might be an agreeable taste, to me, it might be you wouldn't like, at all? Isn't that true? A. Yes.

Q. And an odor I might think was agreeable, you might think was disagreeable? A. Yes.

Q. And an odor you might think was agreeable, I might think was disagreeable? A. Yes.

Q. So, the odor of bleached flour, if there is a difference between it and unbleached flour, you might not like the odor of the bleached flour, but your neighbor might like it? Is that not true?

A. Well, they might, but they didn't tell me that. The bakers, there in Wellington,—they don't tell me they like it, either.

Q. Well, how does it come they use the bleached flour, then, when they can get your unbleached?

A. They don't use it, in Wellington.

Q. What is the capacity of the other mills?

A. The Aetna is about 1200 barrels, and the Wellington mill is about 500.

Q. What one is 1200? A. The Aetna.

920 Q. That's as big as yours? A. Practically so.

Q. Does it keep it up?

A. They haven't run much, the last year or two, or three years.

Q. You have put them out of business, haven't you?

[Q.] We haven't done it; no.

Q. Now, you sampled that and tested it on three occasions?

A. Yes.

Q. And that's the only experience you ever had in testing them? A. That's the only experience.

Q. And in each test you concluded that you preferred the unbleached flour? A. Yes.

Q. Because of the odor?

A. Well, I didn't think it improved the patent flour.

Q. No?

A. While I don't like the odor, I don't think it made any improvement.

Q. Well, what other difference could you notice, when you made the bread out of the bleached flour, and when you made it out of the unbleached, that made you think it was inferior? Now, what else?

A. I don't think the color was as nice.

Q. You don't think the color was as nice? Now, what was the difference in the color?

A. The loaf from the bleached flour had an ashy appearance, while the loaf from the unbleached flour had only a slight, creamy color.

Q. That difference was noticeable? A. Oh, yes.

Q. Any woman that was a baker, accustomed to baking her bread, could see that? A. I think so; yes.

Q. Now, don't you think there might be different tastes on that, as there might be difference in what odor we like?

A. Well, I hardly think as much as you would infer from the fact that bread sells as much on its taste as anything else, and, in fact, more so.

Q. And if the taste doesn't satisfy me, I won't take it?

A. You won't eat it if it is placed on the table.

Q. Now, the taste in this,—was that noticeable?

A. Oh, yes.

921 Q. There was a difference in taste? A. Yes.

Q. Markedly noticeable?

A. Yes, to me. I could tell it.

Q. Then if a person didn't like the taste of bleached flour, they could easily determine it from the other?

A. I think so.

Q. Then the mill which was making the bleached would go out of business? A. Not necessarily.

Q. Well, they don't buy the flour?

A. In some markets, in some parts of the country.

Q. If the odor is offensive, and the taste is disagreeable, he can't sell his flour, can he? A. He does sell it.

Q. If people thought the odor was bad and the taste was bad, they wouldn't buy it, would they? A. Why, yes.

Q. When they could get your unbleached flour?

A. We are not the only ones making unbleached.

Q. No, but if the odor is bad, and the taste is bad; they wouldn't buy the bleached flour, and the mill who didn't bleach [it] flour would get all the trade?

A. I didn't say the odor was bad to everybody. I said it was bad to me.

Q. Oh. Is it bad to other people? A. I don't know.

Q. Other people might like it better than yourself?

A. Yes; might be.

Q. You are not prepared to say but what other people would prefer the taste of bleached flour?

A. I am not prepared to say; no.

Q. You simply say you didn't like it?

A. Yes, sir. And many of your acquaintances don't.

Q. Everybody in Wellington uses the bleached flour, do they? A. Not everybody.

Q. Yet they could all get yours, if they wanted it, couldn't they? A. Yes.

Q. Now, you are making patent flour, there at your mill?

A. Yes.

Q. Branded as such? A. Yes, sir.

Q. And you put in how much? A. 75 per cent.

922 Q. Always 75 per cent?

A. Well, it runs from 73 to 75. I might say 72 to 75. It varies a little, there.

Q. Didn't you say that a patent flour would contain 80 per cent of it?

A. In some instances, where the conditions are favorable—atmospheric condition, and the wheat in good shape, you know—good grade—about 80 per cent.

Q. As a matter of fact it does depend upon the quality of the wheat, and the mill, and the miller, and the atmospheric condition, and a great many influences influence it, don't they?

A. It depends on the mill and the miller, from 80 per cent down.

Q. Now, do you know of any two mills that make the same?

A. Oh, yes; yes.

Q. What two?

A. Well, the Aetna Mill, there, for years, and myself, made a 75 per cent right along. We made 78 per cent there two or three years.

Q. Each running 78 and 80 per cent, at the same time?

A. I don't know exactly.

Q. Now, as a matter of fact, you don't know of any standard that has been fixed by the Government, or anybody else, saying what constitutes patent flour?

A. No, custom has made the only standard.

Q. Now, in making your patent and your straight, is there any difference in the color? A. Oh, yes.

Q. What is the difference?

A. The straight, in the dust, it is slightly whiter than the patent.

Q. That is, if we take a sack of your straight flour, it would be whiter than a sack of your patent flour?

A. Slightly whiter; yes.

Q. Slightly whiter? So, if a person was looking for white flour, and looked at your two sacks, they would take the straight flour, as the whiter,—whiter than the patent? Is that right? A. Yes, sir.

Q. And if they were going to determine of the value of
923 the flour by its color, they would pick out the straight?

A. Whiter in the dough, but not the dust.

Q. No, but when they went to buy it, they would have it in a sack? A. Yes.

Q. If I went to the grocery, and they had some Hunter Mills flour, there, and the man would say, "Here's two sacks of flour, one straight and the other patent", the straight would be slightly whiter? A. Slightly whiter.

Q. So, if I took the color, as to whiteness, as being an index to the character of the flour, I would pick your straight flour, as being the best, wouldn't I?

A. Probably would; yes, sir.

Q. So, if color, as to whiteness, is an index of the value of the flour—

A. (Interrupting) No.

Q. Now, wait until I get through with my question. If color is an index to the character of the flour, and whiteness is one of the things which indicate it, I would pick your straight as being better than your patent, because it is the whiter?

A. Color isn't an index to its value.

Q. All right; let's get at that. Then color is not an index to the value of flour? A. It is one of the indexes.

Q. All right; it is one of the indexes. Then, if I went to the grocery store to buy some of your flour, and regarded color as one of the indexes, I would pick your straight flour as being better than your patent, because it is whiter?

A. If you depended altogether on the color, you would.

Q. Could I tell any difference in the granulation of your straight and your patent flours, if I just took it in my fingers?

A. I don't know whether you could, or not; I can.

Q. Well, you are an expert miller, but let's take an ordinary person, who buys one or two sacks of flour a week, or month, possibly. A. I doubt it.

Q. Could they tell it, by feeling with their fingers?

A. I doubt very much whether the ordinary man could tell the difference.

924 Q. But, as an ordinary man, I could tell the difference in the color, couldn't I?

A. Any flour man, or any baker, or merchant could.

Q. Well, but where we have got a few millers and bakers and flour merchants, we have got hundreds of us people who buy it and pay for it? A. Yes.

Q. We couldn't tell the difference in the granulation?

A. Between the straight and the patent, I doubt very much.

Q. But I could tell the difference in the color? A. Yes.

Q. Then how else could I, going into a grocery store, tell which is the better?

A. Well, you would have to have a miller's drier.

Q. Well, there aren't very many of us who carry a miller's drier around with us in our trousers pockets; but, if I went to the grocery store, and saw your two flours there, and I felt of them, could I tell which was better, and which was the superior flour, by that? A. I don't believe you could.

Q. If I looked at them, I would see the straight was whiter?

A. You would have to have a miller's drier, and smooth them out.

Q. Well, unfortunately the most of us don't carry them around with us, but, if I looked at them, I would see your straight was whiter than your patent?

A. I don't believe you could tell, by looking into the sack.

Q. Haven't you said your straight is whiter than your patent? A. It is slightly whiter.

Q. Then what is there in those two flours, that would indicate to me, as a consumer, which is the superior flour?

A. Why, you would have to go and—As a consumer, I don't believe you could tell anything about it.

Q. All right; we have got that. Then, what has a consumer, then, to go by, if you couldn't tell anything about it by looking at it, as to which was superior?

925 A. If you ever saw a miller smooth out two flours, and compare two flours in the test, you could take that drier and tell the difference.

[A.] Well, I don't suppose there's one out of ten thousand of us that ever did that; but I want to know, now, could a consumer,—a housewife, or the head of a family,—in going to a grocery store and seeing your two flours,—could he tell by the looks of them, which is the superior?

A. That would be a hard question to answer.

Q. What is your judgment as to whether he could or not?

A. It would depend on whether they had ever been about a mill, or whether they had ever talked with a miller, or whether they had ever seen two flours smoothed out that way.

Q. Well, you know, the average housewife never spent very much time around a mill?

A. When a man goes into a grocery store to buy a sack of flour they don't open up the sack and look at the flour.

Q. I think that's true. They don't look at the flour and compare one with the other? A. No, sir.

Q. They don't examine the flour?

A. They don't open the sack.

Q. They buy it from the representations of the grocer, don't they? A. Yes.

Q. And the color,—that cuts no figure? A. Why, no.

Q. They never examine the color? A. No, sir.

Q. They never examine the texture? A. No.

Q. They don't open it up? A. No, sir.

Q. They buy it, wholly on what the grocer says, and the color, in the language of the street, "cuts no ice"?

A. No.

Q. Well, I guess not. Do you treat your flour, at all, in order to color it? A. None whatever.

Q. Do you have any sort of a treatment that you give your wheat? A. I temper my wheat in the ordinary way.

Q. What is that for?

A. It is more particularly to toughen the bran, and get
926 the bran in condition that I can mill it out, and mill the flour off of it.

Q. Don't you treat your wheat with a treatment of hot air, or something, in order to lighten the color of the flour?

A. I first use water on my wheat, and then use heat to dry it out.

Q. And don't you do that for the purpose of whitening the flour?

A. That puts the wheat in shape so that the flour is whiter.

Q. And you do that for the purpose of whitening the flour?

A. That is one of the essentials of milling that has been in practice for years.

Q. Why? In order to color the flour and make it whiter?

A. It plays an important part. The whiter the flour, the whiter the loaf, and we want it that way, as near as we can get it in its natural state. Moisture to wheat is natural, and heat to wheat is natural.

Q. Instead of our electrified air, you use hot air, in order to whiten it, don't you? A. We just use heat.

Q. You heat it with hot air, don't you?

A. Well, I don't know; there isn't much air in there.

Q. Well, how do you heat the wheat, without heating the air? A. There's heat in those heaters.

Q. Now, that is before or after the wheat is ground?

A. Before it has ever touched the rolls.

Q. You heat the wheat, do you? A. Yes.

Q. And that heating process is done by hot air, is it?

A. It is done by steam.

Q. All right. Then you heat your wheat, and one of the purposes that you have in view, in doing it, is to whiten the flour, isn't it?

A. The steam is not applied to the wheat. It is the heat from the steam.

927 Q. All right. Then the heat from the steam is applied to the wheat for the purpose, among other things, of whitening the flour isn't it? A. Yes.

Q. Then that is the way you bleach your flour.

A. We don't call that bleaching. That isn't bleaching.

Q. Oh, no,—no,—of course not; but you use that process to whiten the flour artificially, don't you?

A. Well, not altogether.

Q. Not, not altogether?

A. We use it for putting it into the condition, so we can grind it as we think best to produce a good color and better granulation.

Q. What do you mean by "good color"?

A. Whiter color; of course.

Redirect Examination.

By Mr. Butler:

Q. Describe this process that Mr. Smith referred to as hot air, awhile ago, and tell us whether or not it is one in common use, how long it has been in common use, and what it is for? Was that used before Mr. Alsop introduced his modified air?

A. I have been acquainted with the system of tempering for 40 years or more. I don't believe Mr. Alsop had a bleacher on the market then. We clean our wheat. That's the first requisite in good milling, is good, clean wheat, and we put that through separators and scourers. Then we run into a conveyor, into which we run water, and that wheat is thoroughly blended with the water, so that every grain gets some of the moisture. We let that wheat stand in metal bins, 3 to 5 hours. We draw it from there, then, and run it into wheat heaters, consisting of a cast iron or copper case with tubes running down through the center, and the steam comes inside the case, comes in contact with the tubes. The tubes are small, and the wheat lays down over the tubes, and they are so constructed that it keeps turning the wheat, and
928 gets the heat to every grain, and draws that moisture out again. That water going in there and coming out, leaves the bran in a toughened condition, so that the bran will not—so that it will pulverize the least. The other way, ordinary, dry wheat bran will powder up and make flour out of bran, looks like bran, is incorporated in the flour; but, by

putting it in this process, we prepare that bran in such shape so that we can break it open and take the flour, and middlings off of it without pulverizing so much of this branny substance.

Q. Any chemicals used? A. None, whatever.

Q. Anything besides heat, and what else?

A. Water. Water first.

Q. How long does it take to get this sweat in the heat?

A. I judge from 3 to 5 hours.

Q. Now, how does that change the color of the flour?

A. That enables us to make the flour whiter.

Q. By enabling you to keep the bran out of it?

A. By enabling us to keep the bran out of it.

Q. Now, is this tempering of wheat one of the steps in the milling process?

A. It is one of the important steps, and has been for forty years to my certain knowledge.

Q. Practiced, so far as you know, by all millers, everywhere?

A. Yes, sir; whether he has any bleacher, or not, he tempers his wheat.

Q. Now, Mr. Smith asked you if you know of any other mill that made a 75 per cent patent, or 80 per cent patent. Do you know what the truth is, now, with respect to the Aetna Mill, at Wellington?

A. Well, of course, those mills, there, and myself, are associated, every day, and talking together over the mill,—

Mr. Smith: Well, I object to him telling what the Aetna milling people tell him, as hearsay, and incompetent.

The Court: Objection sustained.

By Mr. Butler:

929 Q. You don't know, of your own knowledge?

A. I don't know, of my own knowledge; no, sir.

Q. Do you know what they did with that clear that they bought from you?

A. Mixed it into their 95 per cent. Blended it with the 95 per cent.

Q. They were bleaching, at that time, were they?

A. Yes, sir.

Q. Do you know what brand it went out under?

A. "Aetna Silk". That's the only one I ever saw.

Q. Did that brand also contain the word "high patent"?

A. Yes, sir.

Q. I intended to ask, in direct examination, whether you are familiar with the hard, turkey wheat, in Kansas?

A. Yes, sir.

Q. Something was asked one of the other witnesses, in cross-examination, as to the grades of that. I would like to have your knowledge on that subject?

A. I have seen No. 1 turkey quoted.

Q. Well, is there in the market, generally, a No. 1 turkey or is it a No. 2, the highest turkey?

A. If there has been any establishment of that grade it was done the past winter. I saw letters in our office with the quotation of No. 1 turkey.

Q. Well, if there is any No. 1, then, it is very recently?

A. It is of very recent date and establishment.

Q. And, usually, this No. 2—

A. (Interrupting) No. 2 is generally the high grade wheat.

Q. Now, you are familiar with this wheat that is sometimes found in the turkey hard wheat, in some parts of Kansas, and some parts of Nebraska, called the "yellow berry"?

A. Oh, yes.

Q. What kind of wheat is that?

A. It is a deteriorated turkey wheat.

Q. A deteriorated turkey? A. Yes, sir.

Q. Is it, by millers and dealers, considered objectionable in wheat?

A. Yes, sir, although we mill it right along, we would rather have the turkey wheat.

Q. Have you been able to observe, from your experience, any difference in the flour produced from the yellow wheat, and the turkey wheat—I mean the turkey wheat that it grows with and among?

A. The dough mixture, where it is all yellow berry, the flour is generally softer, and more creamy, than the hard turkey.

Q. Are the flours as light colored as the hard turkey?

A. Isn't as white.

Q. Have you had experience or observation enough with these bleachers, to tell whether the flour of the yellow berry, after bleaching,—is that like the flour of the turkey hard wheat, or other wheat?

A. In this way, I am,—a grade with about 65 to 70 per cent of yellow berry, mixed with 30 to 35 per cent turkey.

Q. Now, how did bleaching work on that?

A. Well, as I have stated.

Q. It made it whiter? A. Made it whiter.

Q. Now, let me ask you, how much yellow berry was there in that flour?

A. Well, during that time, I think we run about 30 to 35 per cent turkey, something like that. There was some turkey here in Kansas, then, just as there has been in Kansas for the last three years. There is more turkey in this crop than we have had for quite awhile.

Q. The flour that you took to make these baking tests, did you make it from turkey hard wheat, mixed with yellow berry?

A. Mixed with yellow berry; yes.

Q. Now, about the proportion of each?

A. About 70, 65, somewhere—from 65 to 70 per cent of the yellow berry.

Q. Of the yellow berry?

A. Yes. We haven't had anything else to mill with in Kansas for a good many years, except yellow berry.

Q. Now, how much yellow berry runs through the turkey hard wheat—that is, in the wheats that are found in these parts of the country, this year?

A. Well, it varies, now; in some localities, we get cars
931 of wheat that it is pretty hard to find a grain of hard turkey.

Q. It is all yellow berry?

A. We may get, the next time, several cars that will show possibly 50 per cent turkey, and it will range in there, from practically nothing, to 50 per cent.

Q. Of turkey? A. Yes, sir.

Q. That is,—do I understand that there is a larger proportion of the yellow berry,—than the stuff that isn't yellow berry? A. Oh, yes.

Q. So, within 10 to 30 per cent of yellow berry, would be rather favorable situation, on the present market?

A. We would be glad to average 20 per cent. Very glad to average 20 per cent straight red turkey wheat.

Q. 20 per cent of red turkey? A. Yes.

Q. So, your experience is, it runs about 80 per cent, then, of yellow berry?

A. Yes. Well, that is the way we make it. Right in our locality it will run, as you said, from 10 to 30 per cent.

Q. Well, can you find wheat to mill as low as 10 per cent to 30 per cent, yellow berry? A. How's that?

Q. Can you find wheat to keep your mill going, as low as 10 to 30 per cent of yellow berry?

A. We have always been able to, so far. That is, down to 30 per cent of yellow berry?

Q. Yes.

A. No. I mean down to 30 per cent of turkey, and the balance of yellow berry.

Q. So the best you can do is 70 to 80 per cent of yellow berry? A. Yes, sir.

Q. Do you know whether the yellow berry is as prevalent in Nebraska as it is in Kansas? A. I do not.

Q. You wouldn't be able to compare the situation at Wellington, Kansas, with that at Lexington, Nebraska?

A. No, sir.

Q. Now, was this odor and flavor that you spoke of, due to the yellow berry? A. Well I don't know.

932 Mr. Butler: I thought Judge Scarritt intimated something like that, when you mentioned the yellow berry. I thought I heard him say "no wonder he had bad bread."

Mr. Helm: Judge Scarritt hasn't been on the stand.

Mr. Scarritt: I haven't said anything of that kind.

Mr. Butler: I thought I heard you say that.

Q. Now, was there about as much yellow berry in the flour that was bleached, as in the flour that was unbleached?

A. Yes.

Q. It was the same wheat that made them?

A. All made out of the same wheat, at the same moment, you know; just took one sack after the other one.

Q. What was it,—a clear, or a straight, or a patent?

A. A patent flour.

Q. 75 per cent? A. Yes.

Q. How large a place is Wellington?

A. About 7,000.

Q. And the milling capacity of the town is about what?

A. 12, and 15,—27, and 5. About 3200.

Q. About 3,200 barrels a day? A. Yes.

Q. So the milling capacity somewhat exceeds the consuming capacity? A. Oh, Lord! yes.

Q. So the fact that you gave Mr. Smith, in cross-examination that, down at Wellington the merchants and people down there, for the most part, use the flour from your mill, didn't necessarily indicate that the other mills couldn't find any market for their flour, did it? A. No.

Q. One of the principal industries is shipping out, to the world, I suppose? A. Yes.

Q. To all parts of the country, and world, perhaps?

A. Even all the home trade is an infinitesimal part of ours.

Recross Examination

By Mr. Smith:

933 Q. Is there any wheat sold in your market, in your vicinity, by the carload, that grades No. 1 hard?

A. No. We never grade it that way.

Q. The first grade wheat known on the market, down there with you is what grades No. 2, isn't it?

A. No. 2; yes.

Q. Now, the No. 2, as you buy it, there, at the mill,—and that is the first grade of wheat that you can get,—contains, as I understand it, about 75 to 80 per cent of yellow berry?

A. Our wheat will average something like that.

Q. Yes, that's what I mean. It averages about 75 to 80 per cent of yellow berry?

A. Some years, and some years less.

Q. And the balance of it would be turkey red?

A. Yes.

Q. Now, that grows in the same wheat field, don't it?

A. No.

Q. Don't you understand that turkey red—

A. (Interrupting) Of course, turkey red,—you sow turkey red, and in two years,—the second year you sow it,—then, a great part of your wheat—a good big per cent of it will be yellow berry, and the next year, you will have—

Q. (Interrupting) It is true that, in the first year, there will be, in the heads of the wheat, some kernels of what you would call turkey red, and some other of yellow berry?

A. Yes.

Q. So it all comes from the same seed? A. Oh, yes.

Q. So, with the grain used in your mill, you would have as high as 75 per cent of this yellow berry, to 25 per cent of the turkey red? A. Yes.

Q. And you make your highest grade flour from that, don't you?

A. Of course, that is an estimate.

Q. Oh yes; I don't mean to say exactly, but that is about it? A. Yes.

Q. And it is from that you make your patent flour, isn't it?

A. Yes.

Q. And you make as good flour as any man on earth, don't you? A. I don't know about that.

934 Q. Well, you think you do, don't you? You believe you do, don't you?

A. We sell it, all right.

Q. You are not prepared to admit that there is any miller on earth that makes better flour than you?

A. Well, I don't know about that.

Q. You wouldn't like to? You don't admit it on the trade, do you?

A. No. I have been there 11 years, and I never milled a carload of straight turkey hard wheat.

Q. And no other man ever did, anywhere. And the best that he gets on the market, and the best that goes on the market, is a combination turkey red and yellow berry?

A. Yes.

Q. There's no use wasting any time on that, is there, or trying to get away from it, is there? A. No.

Q. What's the names of your flour?

A. The patent flour is "Hunter's Cream".

Q. Does it have the word "patent" on it?

A. Yes, sir.

Q. And what's the name of your straight?

A. Straight, is "Hunter's Upper Ten". That has had the word "patent"—just the word "patent" on it, until the last few months. The last carload of bags that was ordered, that was ordered stricken off.

Q. How many years did you have "Hunter's Upper Ten" labelled as a "patent" flour?

A. Oh, the brand is only about 5 years old.

Q. Then you used it for about four years, did you?

A. Yes. The old [bran] didn't have it.

Q. Then for four years, "Hunter's Upper Ten" went to the trade with the word "patent" on it? A. Yes.

Q. How recently did you cut off the word "patent"?

Q. I don't know just when it was—possibly a year ago we ordered the word "patent" stricken off.

Q. But for four or five years before that, "Hunter's Upper Ten" contained the word "patent"? A. Yes.

Q. And that was your straight flour, wasn't it? A. Yes.

Q. And that straight flour contained what per cent of the entire flour content of the wheat?

A. 95 to 97 per cent.

935 Q. 95 to 97 per cent? So, for four or five years, "Hunter's Upper Ten" contained from 95 to 97 per cent of the entire output and went to the trade as a patent flour, didn't it?

A. Yes. What little we made of it. We didn't make much.

Q. Yes? Now, what's the name of your clear flour?

A. It is branded "Fancy Clear".

Q. Did it have the word "patent" on it? A. No, sir.

Q. Left it off of that? A. Yes, sir.

Q. And that's what is left, after you get out that certain percent of patent, now? A. Yes, sir.

Q. But there wasn't anything cut out when you made the "Hunter's Upper Ten", and labeled it "patent", was there, except the red dog? A. No, sir.

Q. What do you say about "red dog". Do you sell that as flour? A. We don't make any red dog.

Q. That is, you run the red dog in with the bran and shorts? A. We don't make any red dog. Just white flour.

Q. Well, you don't even cut out any red dog, in yours?

A. No, sir.

Q. Then, when you get your clear, that even included the red dog, didn't it?

A. No, sir. We cut the low grade out. We don't make any red dog, I tell you.

Q. Well, you said it is flour? A. Red dog ain't flour.

Q. Well, that which other millers would denominate as "red dog", you ran in with your bran and shorts?

A. That is, we made a sifting out of the dust that is in the shorts, or red dog; we let that go with the shorts. We don't designate that "red dog".

Q. Are there any dealers in Kansas City who handle your flour, now?

A. No, sir, except the Kansas Milling & Export Company. I don't know whether they have any of it on the market, here, or not. I sell them a great deal of flour.

Q. The Kansas Milling & Export Company?

A. They own their own brands.

936 Q. How do they brand it?

A. Their best is "Nobility". That is their patent. Their straight grade is "Integrity", and the clear is "Stability",

Q. Either of these labelled "patent"?

A. I don't think the word "patent" is on any of them, unless it is—no, I don't know of any.

Q. Does the tag show it is made by this firm?

A. Yes, sir.

Q. So, if we can find any flour that is named "Nobility", or "Integrity", or Stability"; that would be your flour?

A. Oh, no.

Q. That would be flour made at your mill?

A. Oh, no. The Kansas Mill & Export Company puts other flours under the same brand, from other mills.

The Court: They brand it that way, regardless of where it comes from.

The Witness: Yes. Kansas Mill & Export Company is the name of the dealer. That is, not the dealer, but the broker, here.

By Mr. Smith:

Q. They have flour from different mills, and brand it this way? A. Yes.

Q. But, if we can find any of "Hunter's Upper Ten", or "Hunter's Cream" or "Fancy Clear", that is made at your mill? A. Yes, sir.

Q. I would like to have you make it a little more clear about this "red dog". You make none of that at all?

A. No, sir.

Q. Now, sometimes, that which is left, after the straight, or the clear,—the low-grade flour—that is sometimes called a "red dog"? That seems to be the truth, as established by the testimony of a great many instances? A. Yes.

Q. Now, what I am trying to get at is,—are the names "red dog" and "low-grade" applied to the same thing, or is "red

dog" that which results from different methods, separate and distinct from the low-grade?

A. Now, the way I mill, and the way a number of mills run that I know of, they make about 44 pounds of flour to the bushel —43 to 44 pounds, and we make a low-grade flour, that
937 constitutes about 1 & 3 tenths to 1.4 out of that amount.

Now, a great many mills go on and mill their shorts down closer, and make a flour in between the shorts and our low-grade, that they call "red-dog". That's a part of milling that I don't know of any Kansas Mill that has taken any notice of. They do that in the North a great deal. They mill it as long as they can get anything that has any resemblance to flour, or even, still what they call "White Shorts", in the North, that we don't make, at all. We make one grade of shorts.

Q. (Exhibiting to the witness a bottle) Now, I have brought in here something that was furnished me, different milling products and, among the things when I opened the case to the jury, I used that stuff in the bottle, marked "red dog", as an illustration of "red dog". Now, is the name "red dog" usually applied to stuff about like that? That's what I am getting at. A. Yes.

Q. And when it is so milled that it comes out as low-grades, what is its appearance, as compared with flour, that is called a clear, I think, on that?

A. It is nearer the color of that.

Q. That is, it looks like flour?

A. Yes, sir. The two, compared together, would be slightly—

Mr. Butler: (To the Jury) You probably will hold in mind what this "red dog" looks like. Now, we have nothing called "low grades" here.

The Witness: I have a sample of low-grade, right out there.

Q. Is that a sample of low-grade you produce?

A. Yes. No, I gave that to Mr. Winslow, I believe,—didn't I.

The Court: Is Mr. Winslow present?

(No response.)

The Witness: I believe it is in my grip, out there.

The Court: We will take a very short recess.

Recess taken as ordered, after which the witness Barnard resumed the stand, and was questioned further, as follows:

938 By Mr. Butler:

Q. You were not able to find your sample of low-grade, that you had, here? A. No, sir.

Q. You gave that to Mr. Winslow, and he is not about?

A. No.

Q. Now, with respect to this "Nobility", "Integrity", and "Stability" brand. As I understand that situation, you furnish flour to some merchants, here, in Kansas City, or dealers, or brokers,—something like that?

A. They are more of brokers. There is a company here that's called the "Kansas Milling & Export Company.

Q. Kansas Milling & Export Company? A. Yes.

Q. And they furnish you the sacks? A. Yes.

Q. And your name doesn't appear, at all?

A. No. My name doesn't appear on the sack.

Q. Now, you say that finding flour with those names on it wouldn't indicate that it was your flour, at all?

A. No.

Mr. Smith: I so understand.

Mr. Butler: Well, I wanted it to be perfectly clear about that.

Q. They might make similar arrangements with a dozen mills? A. Oh, yes. They do.

Q. And it might just as well be the flour of Mr. Leflang, of the Lexington Company? A. Yes.

Mr. Smith: Yes. That's what he said.

By Mr. Butler:

Q. It might be bleached, when your mill never bleached a pound? A. Yes.

Mr. Smith: There's no question about that.

Mr. Butler: Well, I wanted it to be clear, because that flour might turn up with a bad name, some place, and I don't want to blame the Hunter Milling Company with it.

The Court: I so understood.

939 Mr. Smith: Oh, yes; I want to be fair with the witness.

Recross-Examination

By Mr. Smith:

Q. I want to ask you, Mr. Barnard, if there is any broker, here in town, that handles your flour in the bags as you put it up? A. No, sir.

Q. Is there, in Kansas City, Kansas? A. No, sir.

Q. Where would I find a broker who handled that flour?

A. Not in Kansas City, at all,—either one of the Kansas Cities, or retailer, either.

Witness Excused.

George Freeman, called as a witness on behalf of the Government, being first duly sworn, was examined, and testified as follows:

Direct-Examination

By Mr. Butler:

Q. What is your residence? A. Kalamazoo, Mich.

Q. What is your age? A. 33.

Q. And your occupation? A. Baker.

A. What experience have you had as a baker?

A. Well, I have been in the baking business ever since I was 13 years of age.

Q. Where.

A. Served my apprenticeship in England, and served my improvership—

Q. What is that? A. An improvership?

Q. What is it?

A. You serve three years as an apprentice, and you learn all there is in that shop, and when you know all there is in that shop, and your time expires, you are at liberty to leave or to stay on. Then, I went and served improvership, by working a year at the best shop that I knew of.

Q. What place? A. Birmingham.

The Court: England?

A. Birmingham, England. And then, if you take an improvership, you work at very reduced wages, you know, at just slightly over the —For instance, in the apprenticeship I served, I put 10 lbs., or \$50.00, down—

Mr. Smith: If your Honor please, I don't think that is material. Let's get down to the meat of the thing.

Mr. Butler: It don't hurt you.

Mr. Smith: No, it don't.

Mr. Butler: I think if he paid to learn, it is different from working to earn.

Mr. Scarritt: He would know just as much about it, either way.

Mr. Butler: Oh, it don't hurt Alsop's process any, to have this gentleman tell his experience.

Mr. Smith: No, it don't hurt the Lexington flour for him to detail his experience from infancy up.

The Court: I thought you gentlemen were all tired, but I guess I was mistaken.

Mr. Smith: I am tired, your Honor.

Mr. Butler: Yes, and that's the reason you are objecting. If you weren't tired, Mr. Smith, you wouldn't be objecting to it.

The Court: Well, let's go on.

The Witness: (Continuing) I served my improvership at reduced wages, for the purpose of learning all there was of the different things in the other bake shop,—the treatment of the flour, the fermentation,—

941 The Court: You staid there a year?

The Witness: I staid there a year, at reduced wages—

Mr. Smith: Well, that's very material, I guess.

The Witness: (Continuing) And I went and took a position as a mechanic. I worked as foreman of a shop, when 19 years of age.

The Court: Baker shop?

The Witness: Yes. Then I came to America in 1896.

The Court: Been here 14 years?

The Witness: Yes, sir.

By Mr. Butler:

Q. What experience and study have you had in this country, along the lines of baking wheat flour into food products?

A. I worked in the bake shop until 1900, and in 1900 I went to the Chidlow institute, in Chicago.

Q. That is an institute where is taught the science and art of baking?

A. Yes, sir. Then, since then, I have been foreman of the Morton Baking Company, in Detroit. I was foreman for the National Bread Company after that, and since I left Morton's, I was a year with Whittleberger, another bake shop in Detroit. Then, three years ago, I came to Kalamazoo, where I went into business as an active partner with two more gentlemen, with a concern known as the Whitwear Baking Company, where I am, at present.

Q. And what is the size of that concern?

A. Our output varies from 10 to 15 thousand loaves of bread a day, or, we use a carload of wheat—a good carload.

Q. Have you studied different kinds of flour?

A. Yes, sir. I commenced studying flour, when I was about a year and a half in the business.

Q. Will you describe the qualities, or essential characteristics of flour, which affect the bread-making qualities of the same?

A. Certainly. Would you kindly repeat your question?

Q. I would like to have you describe the essential qualities of flour, which enter into the determination of whether or not it is a good flour for bread-making purposes?

A. A good flour should contain, as a foremost consideration, a good amount of gluten, of a high quality gluten, which will give it strength, and water-absorbing capacity, and capable of expanding for a big volume; as will make it expand, and make a big loaf, with a very close grain, or even texture. Second, would be the flavor.

Q. Of the flour?

A. Of the bread made from the flour. That would be a requisite in the flour, to produce good flavor, and, third, would be the color, or, rather, I would rate it as, first, flavor; second water-absorbing and expansive ability, with even texture; and third, color of the flour; and I would write their values, or estimate their values, in the order as I have named them.

Q. That is, you would rank flavor as the most important consideration? A. Yes, sir.

Q. And then the elasticity? A. Yes, sir.

Q. That depends upon the gluten—the quality of the gluten?

A. Yes, sir.

Q. And amount, also? A. Amount and quality.

Q. And, last in importance, you would rate color?

A. Color.

Q. Now, as to quality of gluten. Are you familiar with the location and place that gluten, of different kinds or qualities, is located, in the same wheat kernel?

A. Yes, as close as can be got by our present-day milling processes.

Q. Now, describe that, taking the kernel of wheat, and describe the gluten, where located, and quantity, and quality?

A. The gluten, of course, is the protein of the wheat, and bears the same relation to the wheat that the lean does to the meat—to beef, or mutton, or anything that way. The carbohydrates and starch, have the same relation as the fat of the meat. Now, wheat is practically the only thing containing what we call "gluten". What is known as "gluten". It is the only vegetable substance that we have, that contains it, and that is made up, according to its quality,—made up of gliadin

and glutenin. In the gluten of the wheat, they have a ratio of about 50 per cent gliadin, and 50 per cent glutenin. The gliadin is the soft, springy elastic part of the gluten, which, if you catch hold of it, and pull, it would stretch very long. You could stretch it out perhaps six or eight inches, or more. The glutenin is what we regard as the inferior quality of the gluten. So, nature,—according to where we can get it; as near as we can get it, from our present-day milling methods,—what we call the “middlings patent”, is improved middlings, because it is from the middle of the wheat, or the closest to the germ. The middlings of the wheat, of the whole berry, are the closest to the germ, and the nearer you go to the germ, the higher the ratio of gliadin to glutenin, in this gluten. The further you go—the nearer the bran you get, the higher the ratio of glutenin to gliadin. In other words, nature planted the best quality, or the most easily digestible part of the gluten, the closest to the germ, of course, when it was in the soil, to commence germination, and, in its infancy, to have the most easily digested part of the wheat. Well, the quality of gluten depends upon its ratio of gliadin to glutenin. Now, we find the best baking qualities of a loaf of bread, contains a ratio of two parts of gliadin to one of glutenin. That will make a loaf which will give volume and nice, even texture, a silky feel. You can spoil any bread by fermenting it until you get it sour. So, if it is not over-fermented, it will make what we regard as a beautiful loaf of bread, with a nice crust, which I could best describe as an eggshell crust, thin and brittle. And that's what us bakers regard as the best loaf of bread that we can make. Now, if you turn around—Now, that flour can be obtained from what we call middlings,—from the middlings, or the central portion of the wheat berry, 60 to 65 per cent. That's why us, as bakers, demand the 65 per cent patent. As you get away from that, your proportion of gliadin to glutenin is changed. We have got a high proportion of glutenin, and a very low proportion of this gliadin. Well, that kind of the gluten containing the high proportion of glutenin, to the low proportion of gliadin,—it isn't resistant. You can't stretch it. In fact, it is the hard part of the wheat, and if you get that in the bread, through it being so hard, it is harder to digest during fermentation. You can't ferment it like you can the rest of it. The result is your loaf will be darker colored, because you have got the flour from nearer to the bran. It is darker colored. Your loaf will be darker colored, through not being able to ferment this stuff, properly. You have got a coarse loaf of bread, on account of its hardness. It will dry out quicker, and won't retain moisture, and the crust will be hard and [tuff], like leather. I just

describe it as leather. Most customers say the crust is like leather. Does that sufficiently answer the question?

Q. Now, you say, as I follow you, that of the gluten there is gliadin and glutenin, and in the whole mass of the gluten, there is about half of each? A. Yes, sir.

Q. But not distributed uniformly? A. No, sir.

Q. And you will get a relatively greater amount of the gliadin about the germ of the wheat kernel? A. Yes, sir.

Q. Now, whereabouts, in the wheat kernel, is the part you call the germ?

A. In the wheat kernel, it is about one-third of the distance from the end.

Q. Which end? A. From the end of the wheat.

Q. Well, there's one end that has a little hair-like attachment to it.

A. It is the opposite end of that. What you would say the top. Of course, the hair-like end is what goes down into the ground. That is what is called the "beard" of the wheat. It is the opposite end of the wheat.

Q. It is the opposite end, from the little beard-like processes on the one end? That's what I am getting at? A. Yes, sir.

Q. Now are you familiar with flour known as "patent flour"? A. Yes, sir.

Q. And is that an expression that is recognized in the trade, milling and baking, and in the markets—flour markets?

A. Patent flour is a flour made—should be made—represented to be made from the purified middlings, or the
945 central portion of the wheat berry, to the extent of about 65 per cent of the total flour of the wheat. The term "patent", applied to that, to my knowledge, has been recognized ever since about a year and a half after I commenced in the baking business, which would be 18-1/2 years ago.

Q. That is, you have known it that long?

A. I have known it that long. Never had anyone to interpret it as anything different.

Q. Now, as to the bread-making qualities of patent-flour, compared with the straight flour made from the same wheat. What do you say about that,—or the clear flour, made from the same wheat?

A. The patent flour made from the purified middlings or the 65 per cent, or the most central part of the wheat berry, will make what we regard as the ideal loaf, and it is easily made into bread. If you happen to bake it a little sooner than fermentation has proceeded what is regarded as sufficiently, it will make a good loaf of bread. If you let it stand a little longer, it will make a good loaf of bread. In other words, you haven't got to get an exact point of fermentation on it. It will make a good loaf of bread even when it isn't properly handled.

The straight flour is a different thing, entirely. It is harder fermented, it stands a different fermentation, and it will make a coarse, undeveloped—what we may call undeveloped. You can't properly ferment it. That's why we call it not properly developed in the process of bread-making. The result is it will be coarse, dry, hard, harsh, tough, crust, and if you don't happen to ferment it properly—sufficiently, it will come up very slow, when you put it into the pans, and instead of standing up nice and round, like a patent flour, will, it will run over the sides of the pan. You put it in the oven, it will raise, and will, in nine times out of ten, run over the pans, into the bottom of the oven, as I have seen it, in small batches, when I have been testing the flour, time and time again.

946 Q. Now, as respects the flavor of the gluten, or the volume of the loaf, or the color. I want you to compare those qualities of the bread made from patent flour, as compared with bread made from straight or clear flour from the same wheat as the patent?

A. They will run in the order as I have named them at the commencement of my testimony. The first patent will make the ideal loaf, with a beautiful flavor, big, and expansive qualities, with a fine texture and excellent flavor.

Q. And, compared with a clear.

A. The color, a beautiful, white, light and bright, clean, creamy white.

Q. Now, as to the degree of whiteness, between bread made from the patent flour, and from the clear, or the straight, from the same wheat?

A. Well, I could best describe that, and make it more simple, in percentages. Give, we will say, for instance, color value, from bread made from patent flour—give that 100 per cent. Straight, I would give 90, and the bread made from clear, I would give 80. That's all from the same wheat, of course.

Q. I understand you. Of course, there are variations between different kinds of wheat? A. Oh, yes.

Q. Different conditions of wheat, depending on the harvest, and the rains, and many other things?

A. And so, for instance you mix a patent,—a patent and the clear, or the patent and the straight, you will find that it is all a matter of degree. They vary in color; so, in describing the color of that, say 50 per cent patent, and 50 per cent straight, from the same kind of wheat, the [changes] are, 99 times out of a hundred, it would be 95 per cent color value.

Q. Now, what relation has the relative amount of gliadin to glutenin, upon the flavor, volume, and color of the loaf, made from the patent flour?

A. Well, as far as the flavor of the gliadin and the glutenin is concerned, it wouldn't effect any difference, but the percentage of gliadin to glutenin would be, in the flour that you have just described—would be changed from the description of patent flour, in that it would be a higher per cent. I 947 contend that the glutenin would be greater, and a lower per cent of gliadin, therefore, it would stand a whole lot longer fermentation—in other words, the dough wouldn't ripen anywhere near so quick, and, therefore, it would stand longer fermentation, and the longer you ferment a dough, the nearer you get to what is called and known in the baking business as the bacterial fermentation, and the sweetness, or the soundness, depends upon the proportion or amount of bacteria that you have developed in the form of, say lactic or acetic acid. The lactic will be about 90 per cent of the total acidity. That's how I generally find out.

Q. Have you had some experience with bleached flour?

A. Oh, yes.

Q. Means of observing its characteristics and qualities, so as to determine the effect of bleaching upon the flour?

A. I have worked, I think about an average of probably four or five years,—three or four years, I worked an average of a carload and a half a week, to nothing but bleached flour, for between three and four years.

Q. Where was that?

A. At the Morton Baking Company, in Detroit, F. B. Wittleberger, in Detroit, and the present Witwear Baking Company.

Q. Now, you may describe to us the effect of bleaching, upon the flour, as to its effect upon bread-making qualities of the flour, as you have observed?

A. Well, the effect of it on flour—the only effect I—Now, I can scarcely answer that question, Mr. Butler.

Mr. Smith: You started out, all right, I think.

The Witness: No, I did not.

Mr. Smith: You started to answer it very well.

The Witness: Well, let me explain to Mr. Butler.

Mr. Smith: Well, you just answer the question.

The Witness: The thing is this, Mr. Butler.

By Mr. Butler:

Q. Go on.

A. That I used unbleached flour for a considerable time, and, all of a sudden, bleached flour was sprung on me, and I

948 didn't know what it was. I didn't know that it was bleached. I didn't know anything about the bleaching process. My first—I'll tell you. Perhaps Mr. Smith will be interested in my first experience along that line.

Q. I am quite sure he will.

A. And it was this. I was with the F. B. Whittleberger Company, in Detroit, in 1906, when they had a carload of flour come in named "Sleepy Eye".

Mr. Scarritt: "Sleepy Eye", patent?

By Mr. Butler:

Q. Made by the "Sleepy Eye" mill, in Minnesota?

A. At that time I had no right to say it was patent, low-grade, straight, or anything else.

Mr. Scarritt: I mean the brand.

The Witness: "Sleepy Eye" was the brand, made by the "Sleepy Eye" mill company, up in Minnesota.

Mr. Scarritt: Well, what I wanted to know, was it branded patent?

The Witness: "Sleepy Eye" was the brand.

Mr. Scarritt: Was it branded "Sleepy Eye", "patent"?

The Witness: I don't remember that. That was four years ago, and I wasn't very interested, as to whether it contained the word or not. Well, this flour stayed in the house about three weeks, which we always had done up to that time for the purpose of aging. About three weeks after it was in, I commenced to use it, and I went upstairs one day to put some in. I had the boy put some flour all ready for me to dump it into the sieve, and I up with one—I should mention I was using other flours, you know, I ought to mention that I was using other flours.

By Mr. Butler:

Q. Go on.

A. I commenced to use this flour—this "Sleepy Eye" flour, but I didn't use that alone. So, I was making a four-sack dough—four 140 pound sack dough. I dumped two sacks in.

949 I took hold of the third, which was "Sleepy Eye", and dumped that in. And when it was gone, too late to recall it, I smelled a very bad odor, and it was too late. It had gone in, so I put my hand to the next. I saw the next sack was "Sleepy Eye", and I put my hand to it, and took some out, and put that up to my nose, and that smelled the same way. I examined the stuff, and it had a very yellow color.

Mr. Scarritt: Yellow color?

The Witness: Yes, sir; that was different to any of the other of that car lot. Well, I goes straight in the office, and found Mr. Whittleberger. So, I said, "What kind of flour did you buy, here?"

Mr. Scarritt: Wait. We object to what he said to Whittleberger, or anybody else.

Mr. Butler: Well, now, you got into kind of a running conversation with the witness, yourself.

Mr. Scarritt: That was 5 minutes ago.

Mr. Butler: I know, but he can't pass on your objections, Judge Scarritt.

Mr. Scarritt: I am not making them to him.

Mr. Butler: I thought you were. I think the phraseology so shows.

The Witness: Well, I will leave out what was said.

Mr. Scarritt: Very much obliged to you.

The Witness: I gave such information to the head of the concern, that he went and fetched the representative of the mill. They examined the flour. He found there was objection, and they got the rest of the carload down, and they examined all of it, and they couldn't find any more like it. Mr. Whittleberger charges me today of having doped that sack of flour.

Mr. Smith: I object to what Mr. Whittleberger charges him with.

The Court: Objection sustained.

Mr. Butler: This whole thing was brought out by Mr. Smith.

Mr. Smith: I haven't said a word to the witness about that.

Mr. Butler: They began to object to it. If they had just left it to me, I would have kept it within the rules.

Mr. Smith: It is incompetent, any way.

The Court: Objection sustained.

The Witness: At that time, I didn't know what bleached flour was, or anything about it, but I afterwards recognized the same smell in different samples of flour.

By Mr. Butler:

Q. Now, you say that you worked a carload and a half of bleached flour a week, for a long period of time?

A. On the average.

Q. Now, what I wanted to get at, from you, is, how that flour worked and made bread, as compared with like flours that were not bleached?

A. Mr. Butler, as a baker, we had no way of comparison, for the reason—

Mr. Smith: Now, we don't care for the reasons. Object to that as immaterial.

The Witness: Well, I ought not to have mentioned the word "reasons". I ought to have stated the fact.

Mr. Smith: You stated the fact. You said you had no way of comparison. I object to the witness giving reasons. That is immaterial.

The Court: I see no objection to him giving the reasons. You say you can't compare it? Let's get the facts Mr. Witness.

The Witness: The flour showed a different analysis, from the time we got to know about it being bleached.

By Mr. Butler:

Q. In what respect?

A. Showed that it was a longer patent.

951 The ratio of gliadin to glutenin was not the same. The ash, which is the greatest indicator to us of the length of a patent, was higher. Therefore, we had an inferior quality of flour. Only thing that looked good to us was the color.

Q. Then comparing color against color, the bleached flour was of lower grade than other flour of corresponding color, as respects these qualities you have mentioned.

A. After it was bleached. After the flour is bleached—

The Court: (Interrupting) Answer that question, now.

The Witness: I couldn't tell one flour from another by color.

By Mr. Butler:

Q. Why?

A. Because I had got fooled so many times, by thinking that a flour was a better color than another. Color got to be of no value to me, in looking at a flour.

Q. Does your experience enable you to tell of the characteristics of the dough,—its elasticity,—of the bleached flour, as compared with like flours which were not bleached?

A. Well, as I said, I had no way of comparing the bleached with the unbleached, because all the flours that I was working were unbleached. Afterwards, after the bleaching came into—

Q. (Interrupting) That is, you used unbleached, for a time, and then all that you used for a time was bleached?

A. Was bleached; yes, sir.

Q. And, while you were using the bleached flour, you didn't have the opportunity to bring that into immediate comparison with unbleached flour? A. No, sir.

Q. So, you couldn't parallel the treatment of two flours known to be of the same kind, one bleached and one unbleached? A. No, sir.

Q. Now, do you know what effect upon the color and quality of flour natural aging has, in case that it is unbleached? 952 A. Oh, yes. Natural aging—the color, and what?

Q. Color, and quality—bread making quality.

A. During the first few days—the first few days after milling, or after it goes into our flour warehouse, it improves in quality—in bread making qualities, and in color, rapidly. It continues to improve, up to about—we will say between 60 and 90 days, and it is good flour,[ever] up to a year old; but there is a great improvement all the way. It can be traced all the way, from the time it enters the warehouse, up till 60 to 90 days.

Q. Do you know whether or not flour which has been bleached improves in color, and in quality, in like manner, and to like extent as does the unbleached flour?

A. Well, after we got the bleached flour in, we found that the quicker it was used, the better.

Q. Well, does it improve, and change, with time, as unbleached flour does?

A. No. It was the reverse. It was better to use, say within a month. It will make far better bread than what it will after it has been in the warehouse two or three months. Its baking qualities are impaired by keeping it.

Q. And have you been able to form an opinion, as to the effect upon the color of the gluten, when it is washed out of bleached flour, and unbleached flour?

A. Oh, yes, from samples. The one from an unbleached flour is very tough, and elastic. That is, from an unbleached patent flour, is tough, and elastic, and springy. For instance, put your finger on it, push it down, it will spring back, and the one from bleached flour is practically dead, inert matter, no elasticity,—practically none. If you put your finger on it, it stops there. For instance, if you squeeze it, it will remain very near the same as the impression you make with your fingers, and it will be short. In other words, it looks as though it is slightly rotted.

Q. In all of your experience with bleached flour, have you ever known any of it to improve, as to elasticity of the
953 dough, by natural aging processes, as does the unbleached flour?

A. No, sir. As I said before, the longer you keep it, the worse it seems to get.

Mr. Butler: I think that is all.

The Court: Now, gentlemen of the jury, for reasons that I need not elaborate, I agreed to adjourn promptly at 12, but it lacks a few minutes of it. We could not get very far with this cross-examination. Now, this case has already occupied very nearly two weeks. No doubt it is a considerable burden to some of you. It certainly is to me. I never dreamed that I was getting into this kind of a case when I came down here; but there is only one thing for us to do, that is, to keep good-natured about it, and not get nervous over it, and stay by it until we conclude it. The prosecution, Mr. Butler tells me, will conclude their case in somewhere from one to three days. Then we have the defense, and then I will have to map out for you, as best I can, in a charge, what I regard as the issues on trial here. Necessarily a good many things get in that perhaps were calculated to draw the mind of a laymen off to one side or the other. Now, you keep your minds open, gentlemen, and do not begin to talk about where the merits in this case rest, or who is in the right, or who in the wrong, and, notwithstanding it is a burden, I will have to ask you to have patience, and stay by this case until the conclusion. Just as well it is you and I, as twelve other jurors, and some other judge, going through this. Having entered upon it, we must finish it, and we ought to finish it right when we do finish it. So, you will be excused until Monday morning.

Whereupon Court stood adjourned to 10 o'clock a. m., Monday, June 13, 1910.

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Morning Session.

Kansas City, Missouri, Monday, June 13, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:—

George Freeman, in continuation of his direct examination further testified as follows:

By Mr. Butler:

Q. In the course of your examination so far, Mr. Freeman, you referred to the gliadin and glutenin. What do you mean by gliadin; what do you include in that?

A. The total protein of the wheat, soluble in diluted alcohol.

Q. Now, in your experience of making bread and other bakers' products out of bleached flour have you ever been able to determine or to observe or determine the effect of bleaching upon the flavor of bread?

A. An absolute lack of flavor in bread made from bleached flour.

Q. Bread made from bleached flour is different from the bread made from the unbleached?

A. Decided difference.

Q. As respects flavor, I mean. A. Yes, sir.

Cross-Examination

By Mr. Smith:

Q. What experience do you say you had had, Mr. Freeman, in the use of bleached flour?

A. About between, about three and a half years.

Q. Three and a half years, using how much flour per week?

A. Average of a car and a half, say about three hundred and fifty barrels per week.

Q. 350 barrels per week for three years and a half. Well, during this time were you using, were you mixing the
955 bleached and the unbleached? A. No.

Q. Using bleached exclusively?

[—] Bleached exclusively.

Q. And the bread made from bleached flour has a total lack of flavor? A. Yes, sir.

Q. [The], for three and a half years you made bread which had a total lack of flavor? A. Yes, sir.

Q. Couldn't you get any unbleached flour in that time?

Q. Well, you see I was not buying the flour.

Q. Well, all right, you were not the boss of the mill, boss of the bakery, then?

A. No, sir. The boss of the bakery.

Q. Who was? A. Why, Mr. Morton.

Q. Mr. Morton? Who was Mr. Morton?

A. Mr. Morton owns a big bakery in Detroit.

Q. Is he a practical baker?

A. He has been in the business thirty-two years.

Q. Well, Mr. Morton would know whether or not he was getting a bread which had a total lack of flavor, wouldn't he?

A. Of what we designate the wheat flavor.

Q. Well, you said that bread made from bleached flour had a total lack of flavor, didn't you, isn't that what you told this jury? A. Absence of flavor, yes.

Q. All right, a total absence of flavor.

A. Perhaps I had better qualify it, bread flavor.

Q. I would not qualify it. A. I would.

Q. You told the jury, did you not, that bread made from bleached flour had a total lack of flavor?

A. Yes, sir.

Q. Now, Mr. Morton can tell that as well as you, couldn't he? A. Certainly.

Q. For three years and half in that bakery you used bleached flour exclusively? A. In that bakery?

Q. Yes, sir.

A. I didn't say that, you cut me off there, you didn't let me answer thoroughly.

Q. I did not cut you off at all.

A. Excuse me, but I started to tell where I was at during the three and a half years, you cut me off as soon as
956 I said Morton.

Q. Where did you use bleached flour for three years and a half? A. Morton's.

Q. How long in Morton's?

By Mr. Butler:

Q. Did you finish your answer, Mr. Freeman?

A. No, sir, that is where he cut me off.

By Mr. Smith:

Q. We'll come to it now, answer my question, please. Where did you use bleached flour for three and a half years?

A. Well, will you let me finish up if I start?

Q. Please answer my question. Where did you use bleached flour for three and a half years?

A. Well, say about six months at Morton's.

Q. Six months at Morton's?

A. One year at Wittelberg's, and two years with the Witwer Baking Company of Kalamazoo.

Q. What is the name of that? A. Witwer.

Q. And the baking company you are now with you used it two years? A. No, sir.

Q. Now, when did you commence using it?

A. The day I commenced there.

Q. When was that?

A. 20th of July, 1907, I believe it was.

Q. And you continue using it at this time, the company with which you are now connected, up until what time?

A. About June last year.

Q. June, 1909?

Q. June, 1909? Now, who is the manager of that bakery during that period of time?

A. Of the present Witwer Baking Company?

Q. Yes.

A. Well, I was one of the management.

Q. Who had charge of the baking?

A. The baking end of it.

Q. Now, during that time were you mixing your flours during these two years, that is mixing bleached and unbleached?

A. No, sir.

Q. Were you using part of it bleached and partially unbleached? A. No, sir.

Q. Using bleached exclusively?

A. All bleached flour, yes, sir.

Q. Now, who bought these flours?

A. The secretary and treasurer of the company.

957 Q. Did you have anything to do with the purchasing of them? A. Yes, sir.

Q. What part did you have?

A. I had to do in passing of them.

Q. You passed the flours, did you? A. Yes, sir.

Q. Well, now, for two years haven't you passed these flours, and during that time you used just part of the time or all the time bleached flour? A. All the time.

Q. Nothing else? A. Not to my knowledge.

Q. The two years, for two years for the present company?

A. Yes, sir.

Q. And yet you say that that flour makes a bread which had a total absence of flavor? A. Yes, sir.

Q. Now, couldn't you have gotten unbleached flour during that time? A. Practically, no.

Q. Why not?

A. Because we could not make bread to compete with our competitors if we pay the exorbitant price of the bleached flour, because it created a very small market to buy from.

Q. I don't know as I understand you.

A. The price of flour was very high.

Q. You mean exorbitant price of the bleached or the unbleached?

A. Excuse me, you have it wrong there, it is the exorbitant price of the unbleached flour.

Q. That is what I supposed you meant unbleached; your competitors were using bleached, were they, or unbleached?

A. Bleached, as far as I know.

Q. All the bakeries there in Kalamazoo were using bleached? A. As far as I know, without any exception.

Q. They preferred it to the unbleached? A. No, sir.

Q. But they all did use it?

A. Now, I can only speak in answer to that question how I have talked to them.

Q. So far as you know, they were all using bleached
958 flour? A. Yes, sir.

Q. And for that reason you used bleached flour?

A. Not for that reason.

Q. For what reason did you use it?

A. Because the price of the unbleached was so exorbitant, as I said, it narrowed the market, there was 80 per cent of the flour, about 80 per cent of the flour on the market practically bleached at that time, there had only been 20 per cent unbleached.

Q. And because of the difference in the price you used the bleached flour? A. Had to.

Q. Now, did you find that all this bread that you made during that time had a total absence of flavor?

A. Distinct lack of flavor.

Q. And yet you made it? A. Yes, sir.

Q. And your customers bought it? A. Yes, sir.

Q. Were there any bakeries around in Kalamazoo that were using unbleached? A. Not to my knowledge.

Q. They all went on the market and bought the bleached flour, did they? A. Well, as far as I know.

Q. As far as you know all of them using it now, or have they all quit it now?

A. I don't believe any of them are using it now because the market is bigger for the unbleached flour.

Q. The market is bigger for the unbleached flour?

A. Yes, sir.

Q. Would not that send the price of it up instead of down?

A. No, it brought the price to its proper level.

Mr. Butler: He means there is more flour in the market.

Q. Now, who were you with the one year that you used the bleached flour? A. Witwer.

Q. Where is that?

A. Detroit, Michigan; they buy bleached.

Q. Did you use bleached flour or part bleached and part unbleached? A. No, sir.

Q. Were you using bleached flour exclusively or use bleached flour today and unbleached tomorrow?

A. Perhaps I better explain it to you a little. About
959 there, bleached flour and unbleached flour came on the market while I was there, and I couldn't tell the difference.

Q. What?

A. I couldn't tell the difference for a while.

Q. How long did it take you before you could tell the difference?

A. Why, I guess I was told it was bleached practically before I knew, because I had not tested any.

Q. Why couldn't you tell by the flavor of the bread that it was bleached flour?

A. I know there was a distinct lack of flavor in the bread, but I didn't know what was the cause.

Q. You knew what it was, how long did you use it with these people?

A. Why I commenced using it there, that was the first knowledge I had of it.

Q. I say how long did you say you was with them?

A. Why, I was with them a year, and I was there very near three months, practically, before I knew that I was using any bleached flour.

Q. You knew it for the last nine months, did you?

A. Oh, yes, sir.

Q. Continued to use it? A. Yes, sir.

Q. Well, now, did you use it all the time during that nine months or did you mix some of the unbleached?

A. Well, it was all bought the same.

Q. Bought as bleached flour, you used it?

A. I don't know as it was qualified as bleached flour, but bleaching came into vogue at that time.

Q. Well, it all was bleached that you used during that nine months? A. To my knowledge.

Q. And made a bread that was wholly without flavor?

A. Distinct lack of flavor.

Q. But you continued to use it during all the time you remained with them? A. Oh, yes.

Q. And then you were for six months with whom?

A. Mr. Morton.

960 Q. Oh, yes, and when was that? A. Was what?

Q. That six months that you used it with him?

A. Why, in what way do you mean?

Q. I want to know when it was that Morton used this, this year or last year, or what year was it?

A. Oh, I guess it was about 1907.

Q. Were you with him just six months?

A. Just about six months, as near as—

Q. And you used bleached flour all the time?

A. Yes, sir, some of it was this "Integrity" that you were speaking about last week.

Q. Came from where?

A. From down in Kansas somewhere.

Q. Oh, that was some that Mr. Barnett spoke about?

A. Some of that flour was under question last Friday.

Q. Some of Mr. Barnett's flour?

A. I don't know whose flour it was; I only know the brand "Integrity".

Q. Well, do you know that that was bleached? A. Sir?

Q. Do you know it was bleached, the flour that is branded "Integrity", do you know it was bleached?

A. Why, I was not qualified enough on bleached flour at that time to say whether it was or not.

Q. I see. Now, altogether, you have been baking in the state of Michigan how many years? A. About five years.

Q. And about five years, and for about three years and a half or four and a half years of that time you have used bleached flour? A. Yes, sir.

Q. Now, you speak of the different components of flour. You could not make bread with pure gluten, could you?

A. Pure gluten?

Q. Yes.

A. Why, that would be distinctly flavorless, odorless, tasteless; it would not be bread.

Q. No, it would not be bread, and you could not make bread if you had just the pure starch of the wheat, could you?

A. No, sir.

Q. Now, what is whole wheat bread?

A. Whole wheat bread is the bread which is supposed to be made from the flour milled from the whole of the wheat.

961 Q. There are very many people who regard whole wheat bread as the best bread they can get, don't they?

A. It is regarded mostly by unhealthy people, by experience.

Q. A person whose health is not the best? A. Yes, sir.

Q. You heard the testimony of the doctor from Milwaukee, did you not—Dr. Kempster? A. No, I did not hear it.

Q. You did not hear his testimony. Well, you know it is true, do you not, that there are many people who prefer the whole wheat flour to either patent or any other kind of flour?

A. Well, there seems to be quite a number because out of our fifteen thousand loaves as we bake on a day, there will perhaps be twenty or thirty who demand whole wheat flour.

Q. You manufacture whole wheat flour at your mill?

A. Yes, sir.

By Mr. Butler:

Q. Twenty or thirty?

A. Out of fifteen thousand, so there must be somebody demands it.

Q. There is some demand for it? A. Yes, sir.

Q. A patent that was only a 20 per cent, or down so fine as that, could you make good bread out of that?

A. Why, no, that would not make good bread, but I believe it would make good pies and pastry and cake.

Q. But it would not make good bread?

A. No, the ratio of gliadin and gluten would not have disappeared enough to make a big enough loaf; it would not give the expansion or volume to the bread.

Q. In the unbleached flour you put a little more water than you did in the bleached? A. Yes, sir.

Q. In order to get the same volume of bread?

A. Yes, sir.

Q. Now, could you tell the difference in the color of the loaf as it came out of the oven, the bleached and the unbleached? A. Yes, sir, we could tell that.

Q. That is, a marked difference, is there?

A. Why, the one—

Q. Answer my question, it was a marked difference, is there? A. A marked difference.

962 Q. Has it an objectionable color?

A. With the bleached, oh, yes, distinctly, objectionable.

Q. Everybody objects to it.

A. Now, I can't say everybody; I could not voice everybody.

Q. Well, did your customers generally object to it?

A. Well, I generally tried to remedy things before the customers ever had a chance to object.

Q. That was not my question at all. I didn't ask anything about what you was trying to remedy. I try to make my question plain, maybe I don't. My question is did your customers object to the color of the bleached flour loaf?

A. Oh, no.

Q. It satisfied them, did it? A. I don't know.

Q. You never heard a complaint, did you? A. Oh, yes.

Q. Then it did not satisfy them, did it?

A. It did not satisfy all of them, that is sure, otherwise would not have heard of it.

Q. The three years you were there you used bleached flour exclusively? A. Yes, sir.

Q. Have you been in any of the bakeries here in Kansas City? A. I beg pardon.

Q. Have you been to any of the bakeries here in Kansas City? A. Yes.

Q. Been in the largest bakery here? A. Yes, sir.

Q. You know it uses nothing but bleached flour?

A. I know nothing, I did not ask a question because I was down here as a witness.

Q. Were you at the Smith Baking Company, the largest in Kansas City? A. Yes, sir.

Q. As a matter of fact, it don't use anything but bleached flour and won't use anything but bleached flour?

A. Absolutely, Mr. Smith, I don't know the first thing about it because I never asked them.

Q. Did you examine their bread?

A. No, I saw it on the rack.

Q. Was it odorless? A. Odorless.

963 Q. Yes, sir, was there a total lack or odor to that?

A. I never went near it; I saw it standing on the racks.

Q. Was it offensive in its odor?

A. Didn't smell or go near it.

Q. Was it objectionable in its appearance?

A. Did not attempt to criticize it.

Q. Did you see anything wrong with the odor made at the Smith Baking Company of Kansas City?

A. I could not pass any opinion on their bread because I did not criticize or go near their bread; I just talked with the foreman as he used to bake under a friend of mine.

Q. Well, didn't you learn there that they used nothing but bleached flour?

A. Didn't learn anything because I didn't ask for it.

Q. Didn't he tell you so? A. No, sir.

Q. Well, from your knowledge that you have acquired, either from that source or any other source, don't you know that the Smith Baking Company of Kansas City uses nothing but bleached flour?

A. No, sir, I have not the least knowledge of it.

Redirect Examination

By Mr. Butler:

Q. You say that the bakers at Kalamazoo did not prefer to use bleached flour over unbleached flour?

A. They preferred to use unbleached flour.

Q. Well, why did they use the bleached, then?

A. Because 80 per cent of the flour, over 80 per cent, or about 80 per cent of the flour of the total flour of the country was bleached flour, bleaching was in vogue; we would object to that, but we would get it just the same.

Q. Yes, sir. You say at first you did not discover that it was bleached, and couldn't find the cause of the difference in flavor, the lack of flavor, of the bleached flour?

A. Yes, sir.

964 Q. Now, what experience did you have with this bread or flour called "Integrity", that Mr. Smith refers to in his cross-examination?

A. I went to the Morton Baking Company, commenced there as foreman or head baker, just which you call it, and they had some flour there which they had difficulty with and stopped using it because they could not make good bread from it. They asked me if I could work it up, as they bought eleven carloads; I presume it was pretty close to some thousands of barrels of it, they told me it was eleven carloads, they bought it, it was in storage, they could not use it, but they had used about half a car of it and could not use any more, and asked me if I could handle it.

Judge Scarritt: I object to that as mere conclusions and statement of hearsay of the witness.

Q. Go on, tell how it worked when you tried it.

Judge Scarritt: It is not in answer to that question at all.

A. I found I could work it by cutting down the water and taking the dough in shorter time.

Q. What do you mean, shorten the period of raising?

A. Shorten the period of fermentation, cut down the water, making it stiffer so as to get a higher condition or a higher ratio of water or flour in the water than what they previously had, and in that way I worked it off by blending it with flour that they had in storage at that time, I blended it two sacks of that to three of the other flour.

Q. Now, you say the unbleached flour will take more water than the bleached flour?

A. It will carry more water.

Q. Now, explain what you mean first by taking more water, and then explain what you mean by carrying more water; I don't know that I understand that fully here yet.

A. By taking more water I mean that we make a dough, we make it for a certain stiffness, and I had to use less water with the unbleached and make the dough stiffer because then comes in the water carrying it; we make a dough a certain consistency or a certain stiffness, and it has five or six 965 hours for fermentation, and during that five or six hours' fermentation will depend the stability of the flour. If it is a flour that has good stability like I described the unbleached flour it will be about the same stiffness at the end of five or six hours as what it was when it was first made; but the flour that has not the stability, was slacked off during that five or six hours, and be a little slacker when it comes in the table to be made up into pans, than [when] it was when it was first made; that is what we call carrying water into it and will make water.

Q. Well, has the quality of the gluten any effect upon that, upon the taking of the water or carrying of it?

A. Oh, yes, the quality of the gluten, all depends on the quality and condition of the gluten; that is where aging comes in.

Q. Now, with a good gluten and good condition, you say it takes more water and carries more water, how is that?

A. Why, with a good gluten in good condition it carries much more water.

Q. And you say the bleached flour would not carry as much water as the unbleached?

A. Would not carry it; it would be the same consistency when it came out of the mixer, but it would not, what we term, carry it, at the end of fermentation, when it comes to the oven.

Q. Now, as to the strength of gluten, as holding the gas, take the raising process, there is gas formed? A. Yes, sir.

Q. Now, have you been able to observe whether or not the gluten of the bleached flour would hold the gas as well, the gas bubbles, as well as the gluten of the unbleached?

A. Oh, no, that is why I said we had to make the dough stiffer or cut down the water to get the volume.

966 George A. Hulett, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. What is your name? A. George Hulett.

Q. State your profession and occupation, Professor Hulett.

A. I am at present professor of physical chemistry at Princeton University, physical and electro chemistry.

Q. What is physical chemistry as distinguished from analytical chemistry and physiological chemistry, and so forth?

A. Well, physical chemistry deals particularly with the atoms, about physics, and chemistry—the province of it is, principally the fundamental principles of chemistry, that includes electro chemistry, that is to say the relation between electric energy and chemical changes, and things of that nature.

Q. And what has been your education, degrees, and so forth?

A. Well, I was graduated at Princeton University in 1892; was assistant in chemistry there for four years after being graduated; then I studied in Germany for three years in Oswald's laboratory in Leipsic, where I took a doctor's degree. On returning to this country I went to the University of Michigan as an instructor in physical and electro chemistry, and I was there for five years as instructor and assistant professor, and in 1905 I was called to Princeton University as professor of physical chemistry, and I have been there since.

Q. Have you made any examination of any of the flour which has been seized in this case?

A. Yes, sir; I have examined the flour that was seized in this case. I got a sample from an exhibit here, one of the exhibits, Mr. Winton's bag of flour.

Q. The bag that was sent to Mr. Winton's laboratory?

A. Yes.

Q. This flour here in evidence in the court?

A. This flour in evidence. Mr. Winton witnessed my taking the sample.

Q. Do you remember which particular bag it was here, 967 or did he point out the bag?

A. He pointed it out and opened the bag, and I took the sample and he closed the bag.

Q. Now, what examination did you make of that flour; did you examine it to ascertain whether or not it contained any nitrogen peroxide gas, nitrite re-acting material, or anything of that sort?

A. I examined that flour from the standpoint of determining whether it contained nitrogen peroxide and nitrous acid.

Q. Where did you make the examination?

A. I made the examination here in your food laboratory.

Q. That is, in this building? A. Upstairs, yes, sir.

Q. That is since the commencement of this trial?

A. Yes, since June 4.

Q. I would like to have you describe to the court and jury how you examined it and what you found?

A. Well, in some previous work, in some previous work at Trenton before I came here—

Mr. Smith: That ain't the question.

Q. Well, I withdraw it. Preliminary to that you may state whether or not you did any previous work on bleached flour.

Judge Scarritt: On this flour.

By Mr. Butler:

Q. On bleached flour, on flour bleached by nitrogen peroxide gas.

Judge Scarritt: We object to that because he stated that he has had experiments on this identical flour. It is immaterial what he has done on other flour.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. Analytically, I want it. Go on.

A. I may answer what I did previously as to experiments?

Q. Yes.

A. Simply as an explanation I would say that previous experience showed me that I found nitrogen peroxide in the air, in flour, and nitrous acid in bleached flour, and that I 968 could pump it out and get it out, and since I have been here and taking this sample of this particular bleached flour and I have been able to pump out nitrogen peroxide and nitrous acid out of the flour. The way I do that is to put the

flour in a vacuum, and then from a tube—perhaps, the apparatus would make it very clear as to what I did with this flour. I have here the apparatus that I used, not for the flour, but one similar, for the flour; this is the one I used for bread made from the flour. Now I think you can all see here.

Q. Professor Hulett, perhaps everyone could see much more easily if that was sitting there, and it would be easier for you. Can all the gentlemen now see the thing?

A. I don't think they can very well.

Q. Then perhaps His Honor would permit you to set it there. A. If I should stand—

Judge Scarritt: If you take a seat.

By Mr. Butler:

Q. Now, can you describe it. Let me give you a little pointer, perhaps, so you can reach it.

A. You will see that this is a glass flask here in which I can introduce my flour and that I am working with; and furthermore, this apparatus was constructed, in this apparatus we have here a tube, leading off here with a waste cock; then here is a tube leading down, so that is closed, simply closed; now this tube up here is closed also; this is simply for the purpose of removing this liquid with a long capillary tube and bulb. I put the flour in a flask of this kind, about five hundred grams of it, about a little over a pound, and then I closed it up, and then I pumped the air all out, used a mercury pump, that would pump that air all out; when it was all pumped out I turned this cock, so that there was nothing in there, that removed the air and everything, then I brought a cooling mixture on the lower part of this tube. Now, I used, I used this, what is known as a R. R., but you probably know it as a Thermos bottle; I put my freezing mixture then, bringing it around the outside of that tube. Now, under those conditions if

969 your temperature is low enough there, that will condense the moisture, water, fluid, that is continually coming from my flour, the oxide of nitrogen, and also the products of nitrous acid as it volatilizes; in other words, it is a method of distillation; I have the temperature outside higher than it is here, or have this temperature very much lower than room temperature, so my flour remains at room temperature, I do not treat it chemically or otherwise, and in time it leaks rather slowly, it depends upon the vacuum, if you have a good vacuum it goes fairly rapidly. There is some liquid, for instance, that I collected from this particular sample of matter and in the same way. I collected a liquid which is largely water, from the flour in question. Now, we have samples of that here. Here I have a sample of liquid—

Q. Just a moment. We will have to mark these things as we go along, I think, in order to avoid confusion, mark them all, that is label exactly what it is. Label, June 6, 1910, liquid condensed from flour I S 12351, B Griess applied June 13, 1910, G. A. Hulett.

(The bottle referred to was marked by the stenographer Exhibit 20.)

Q. That is marked "Government's Exhibit 20". Now, is this the one corresponding to it, Doctor?

A. This liquid is liquid, a part of the liquid, not all of it, a part of the liquid that I condensed from this particular sample of flour, that I put in the flask.

Q. That was taken out of this seizure here by Dr. Winton in your presence in the courtroom?

A. It was; that was done on June 6th and following days, and this morning that was perfectly clear liquid; this morning I put in the Griess re-agent to it and you see a color in connection with it which shows that there is nitrous acid in the liquid that I condensed from the flour. You can probably see it as well there as not.

Q. Now, that we may be sure that we understand the steps taken to examine this particular flour, as I follow your description you place the flour in a flask corresponding to 970 the flask in this instrument that is here in court in which the bread is contained, and first by means of an air pump exhausted the air.

Judge Scarritt: He has explained it.

Mr. Butler: I want to be sure. There is no objection to repeating a little of it. It is not easy for me to understand one of these things at the first discussion and I presume perhaps, it may not be to the others. I myself, have seen this thing done, so I'm not doing it for my own benefit; it is for the court and jury.

Q. And after that is done you continue to pump and about this vertical tube you keep a cooling mixture?

A. That is correct, yes, sir.

Q. And the effect of that is to condense the vapors pumped from the bread? A. That is correct.

Q. Or flour, as it was in this case? A. That is correct.

Q. And that condenses into a clear liquid? A. Yes, sir.

Q. Now, from this very flour that was furnished you in the courtroom here by Professor Winton you pumped out this liquid and some other liquid which is contained in Government's Exhibit 20, and when pumped out that was clear as is this liquid in the instrument here, arranged for testing the bread? A. Yes.

Q. And this morning before taking the stand you introduced into the liquid the Griess-Ilosvay test?

A. That is correct.

Q. And it turned it to the color that it now shows; is that correct? A. That is correct, yes, sir.

Q. Now, is this Griess-Ilosvay test also clear in color, the color of the test itself, is that also clear?

A. Yes, sir, it is.

Q. Transparent like water or something like water?

A. That is I believe like water very much; I took the best reagent.

Q. Had you before introducing this Griess-Ilosvay test in the flour which is in Government's Exhibit 20, tested some of the same flour? A. I had.

Q. And did you test it so as to measure the amount of
971 nitrous acid or NO₂ that you found in the flour seized and which was furnished you by Winton here in the courtroom? A. I did.

Q. And how much did you find?

A. I found 2 and $\frac{1}{2}$ parts of NO₂ as nitrous acid per million of that liquid.

Q. How do you get at—how do you measure the quantity?

A. Why, I took a given volume.

Q. Well, is it measured by color or weight, put on the scales to be weighed?

A. Measured by color, comparative with a solution containing a given amount of nitrous acid.

Q. Now, what effect upon color has varying volumes of nitrous acid in such a solution?

A. It increases the color; the greater the amount of the acid, the nitrous acid, the more intense the color.

Q. And then by taking known solutions, a number of them, you compare the specimen under examination with known standards and arrive at the amount that way?

A. That is the usual method of determining nitrous acid, that is what is done.

Q. Have you made any examination to ascertain whether or not there is nitrous acid or NO₂ in bread made from the flour that was seized in this case? A. I have.

Q. Who furnished you the bread, and when and where?

A. Miss Wesling furnished me the bread.

Q. She is one of the Government employees, is she not?

A. She is, I believe.

Q. Hannah L. Wesling, her name is. Now, how did you examine the bread to ascertain whether or not it contained NO₂?

A. I put the bread in this particular flask we have before us here that is the sample of bread that I worked with; that

is three-fourths of the sample furnished me by Miss Wesling, made by the Koelner process, I believe.

By the Court:

Q. Koelner?

A. Koelner process, and she had made that bread, so she stated to me, from the flour, the seized flour.

972 By Mr. Butler:

Q. Well, we expect to show that she did.

Mr. Smith: Well, I don't doubt that, but I don't think the witness ought to detail,—

Q. I think he has a right for the purpose of maintaining the chain of identification.

The Court: With the understanding that this lady is to be called as a witness to identify it he may testify.

Mr. Butler: Certainly.

Witness: And I put the bread in the flask there, I think it was done this same date, like that, and closed the flask up, and then pumped out all the air, and after I pumped out the air I put my cooling mixture in this Thermos bottle, and then I brought it up, I remember the shape there of this particular case, I used liquid there, and I condensed the liquid. Now, here is part of the liquid that I condensed, and another part of it, I have here a tube to which I added the Griess re-agent, here is the part that I took out this morning, made that tube and put it in that glass pipe and sealed it up and added the Griess re-agent to it before sealing it up.

Q. Now, the tube that you refer to is marked "June 8, 1910. Liquid condensed from bread from I S 12357—is it 57 or 51?

A. It is 12351, I believe, 12351 B I S, and the Griess re-agent applied June 13, 1910.

Q. This morning before coming to court? A. Yes, sir.

(The tube referred to was marked by the stenographer "Government's Exhibit 21".)

Q. Now, that Exhibit 20 contains the test for nitrous acid on the liquid taken directly from the flour, the test having been applied just before you took the stand?

A. Yes, sir; that is correct.

Q. And Exhibit 21 shows the test on the liquid taken from the bread, the test having been applied just before you
973 took the stand this morning? A. That is correct.

Q. Now, by comparison of color can it be stated which of the two is the strongest in nitrous acid?

A. It is possible to do that.

Q. Can you tell from your present position, or have you determined quantitatively?

A. I have determined quantitatively in the laboratory where we have a known—or we have solutions made up with a known amount of nitrous acid, and where we have a more exact method of comparing those two; it is a little difficult at this distance.

Q. Well, what is the quantity determined from the bread?

A. Determining in that way the amount of nitrous acid in the liquid condensed from the bread I find 1.2 parts of NO₂ as nitrous acid in that liquid.

Q. That is two and a half parts of NO₂?

A. No, 1.2 per million.

Q. Yes, sir, but the flour was two and a half parts?

A. Two and a half.

Q. And the bread was 1.2?

A. The liquid from the bread was 1.2 from the bread per million.

Q. Now, in testing this flour and bread did you add any substance or thing whatsoever to the flour or bread?

A. Nothing whatsoever.

Q. Now, with respect to the temperature of the flour and bread at the time of the pumping operation?

A. The flour and bread remained at room temperature during all the operation; I did not change.

By the Court:

Q. By room temperature you mean the room where you were working?

A. The room where I was working, and that room temperature was, I should say, in the neighborhood of 20 to 25 degrees centigrade.

By the Court:

Q. What is that Fahrenheit?

Mr. Butler: 100 is the same as 212.

The Court: Yes.

974 By Mr. Butler:

Q. 100 and 212 Fahrenheit.

A. 25 degrees centigrade is 75 degrees Fahrenheit. very nearly.

The Court: Practically the same as the room we are now in.

A. The laboratory is perhaps a little bit warmer than this room, although we have a good draft there, perhaps not.

By Mr. Butler:

Q. By the way, I would like to ask you whether or not the color appearing in Government's Exhibit 20 and Government's

Exhibit 21 as a result of the application of the test is stable, or whether by lapse of time it will change?

A. The color of that solution will decrease with the lapse of time, probably due to the fact that the azo dye that gives the color separates out, and it could be due also to the fact that there is some organic matter in that liquid, a small amount, because in condensing there are certain vapors from that that are condensable and they probably contain some organic matter.

Q. And what effect would the organic matter contained in liquid of that sort have upon the stability of the color test?

A. Well, I think it would probably cause it to decrease it at times.

Q. I think in your testimony so far given you used the expression of the air contained in the flour? A. Yes, I have.

Q. Now, what do you mean by that?

A. Well, flour consists of a lot of fine particles, and they are not closely packed, and we find that there is air all through in our flour; as far as I can find the density, the specific gravity of wheat is about one, about the same as water—not an exact determination, but that is very close to it, and I also understand that flour is about .65 or .64.

By Judge Scarritt:

Q. What do you mean by that .65?

A. It is .64 times as heavy as an equal amount of water. Taking those figures I would conclude that the given volume of flour was about one-third air.

Q. That is the air between the particles of flour dust?

975 A. Yes, sir, that is to say if the particles of flour were so closely packed that there was no air between them, the volume would be one-third less.

Q. Now, in your examination of this flour that was seized did you ascertain whether or not there was any NO₂ in the air mixed with the flour?

A. The fact that I condensed water here and got in it nitrous acid is conclusive proof that there was NO₂ in the case that was seized there to that liquid.

Q. Did you make any ascertainment to find out whether or not there would be NO₂ or was NO₂ in the air in the flask which was not mixed with the flour, that is, the part of the flask that was not occupied by the flour?

A. Before condensing any liquid by the cold moisture around the tube below, I pumped out all of the air in the flask and I pumped it out with a mercury pump so that it was practically all out, that is not only the air in the flour, but the air, not only the air in the flask, but the air in the flour; you can remove it quite completely with a good mercury pump, and then after all of that air had been removed that

was not water, vapor and nitrogen peroxide, it contained, then I put the freezing mixture on this lower tube and began to condense liquid or vapor that was coming from the flour, so it had nothing to do whatever with the air that was around the flour or in the flask at the start of the experiment.

Q. Does there an equilibrium of gases exist between the NO₂ and flour and the air about it?

A. I have some experiments which show that there is an equilibrium between the flour and the air that is in intimate contact with it.

Q. Will you describe those methods by which you made such experiments?

A. I have a diagram here, perhaps that will make it clear.

The diagram referred to was marked by the stenographer "Government's Exhibit 22".

Mr. Butler: Now, there are various figures on this Exhibit 22, perhaps they ought to be marked some way, what would you suggest—A, B & C?

976 A. Yes, sir, we call that—those two go together, those four flasks, and that is A, and you might call this B.

Q. You may call this AA, then.

A. Now I think I took flasks of the same volume, I tested out a large number of flasks, and I got four of the same volume, and in this flask, for instance, I placed some flour which had been bleached, and after I placed the flour which had been bleached in this flask, this flask, tube, flask was removed, and by means of the pump I pumped all the air out, which took the air not only above the flour, but the air that was in the flour, removed it all, then taking it outdoors where there was pure, fresh air, I let in some pure fresh air and filled the flask with that; then the flask was taken into the room where the temperature was constant, and it was allowed to stand with occasional shaking, for twelve hours, the object being to allow the air that—the pure air that I had introduced to come into equilibrium, to take up whatever it would from the flour; the temperature was constant. After that this upper flask was placed on here, and it had been evacuated, that is all of the air pumped out with a mercury pump, and we can pump it out quite completely. Then this cock was turned, and of course the air in here expands up into this flask, and I took out half of the air that was in here, or, in other words, I measured it so that I knew the amount in there, I had a little bit of asbestos plug here to filter it so that no dust could get through and no air could get through. Then this flask was removed, a little caustic potash was put in there to absorb any gas we had in the flask, and then it was determined, the amount of nitrites that I obtained was de-

terminated and I found nitrites. Now, I took this same flask and pumped it out again, leaving the same flour in there, and took it outdoors and introduced fresh air, and then let it stand again and repeated the experiment in that way several times, and that is the amount that I got here at the various times, the various amounts were in fairly good agreement. That would show then that this flour gives up nitrogen peroxide to air which contain unmeasurable quantities of nitrogen peroxide; I tested the air and again detected nitrogen peroxide in it.

Q. How many parts to the million of nitrites?

A. Take the two liter flasks of that air, I could not get the test for nitrites by means of caustic potash, absorbing whatever there was in caustic potash, the two leader flasks of that air would be about two and a half grams, and I calculate from the delicacy of the Griess test that I should have been able to determine about five parts, as I remember my figures, in a thousand million.

Q. Five parts to the billion?

A. Yes, sir; and so I concluded there was less than that. Now, the amounts that I got up that I obtained here were something over one part, or in the neighborhood of one part in the million, so that there is—

Q. The amount that you obtained here, now, what do you mean by that?

A. That I obtained in this experiment.

Q. In the flask?

A. In the air thus taken from this flask.

Q. That is in the air that passed to the upper flask?

A. Yes, sir.

Q. In the manner you have described. Now, the degree of your vacuum, how much of a vacuum did you have, Mr. Elliott suggested the question?

A. Yes, that is important, to a certain extent. I used first a geryck pump, it is a well known pump for producing a vacuum and will give a vacuum of less than half a millimeter of mercury.

Q. And then?

A. And then I used a mercury pump, a so-called Toppler pump, I believe, it is a well known instrument, and that would reduce it to less than one-tenth of a millimeter of mercury.

Q. Well, now, is that a pretty good vacuum?

A. That is a very high vacuum in air; that would be something like one part in eight thousand.

Q. Now, this work was done at Princeton?

A. This work was done at Princeton, yes.

978 Q. What particular flour did you have there on this work?

A. On this work I used flour which was bleached in the Princeton laboratory.

Q. You bleached it yourself?

A. I bleached it myself.

Q. Where did you procure the flour before bleaching it?

A. I procured the flour at the Kingston Mills, Kingston, New Jersey.

Q. That is a mill in that neighborhood?

A. Yes, it is about three miles from Princeton.

Q. Was it bleached when you got it?

A. No, we tested it, and it gave no test for nitrites, and the mill has never used the bleaching process for flour.

Q. How was it bleached and to what extent, what quantities of NO₂ were employed?

A. In this particular experiment that I indicated here as "A" the flour was bleached with 18.6 parts of nitrogen peroxide per million.

Q. And how much nitrite re-acting material would that add to the flour theoretically, assuming that it all could be recovered?

A. That would add to the flour theoretically, assuming that the nitrogen peroxide goes to nitric and nitrous acid in the water and the flour, it would add chemically one-half of that as nitrous acid.

Q. As nitrous acid? A. As nitrous acid.

Q. That would be 9.3 parts per million as nitrous acid?

A. Yes, sir.

Q. And as nitrogen what would it be, various expressions have been used to mean the same thing by different investigators?

A. Well, if you divide that figure by 3.3—3.28, I believe it is, the 3.3 is sufficiently accurate. You divide by 3.3 you will get—9.3 by 3.3 would be about three parts, computed about three parts of a million computed as nitrogen, a little less than three.

Judge Helm: 9.3 divided by 3 would be 3.1.

979 By Mr. Butler:

Q. It is divided by 33, 3.3 it will be about one-third of it, it will be about one-third of it, in other words when we speak of quantities of nitrous acid or NO₂ in parts per million, and want to compare it with the same thing expressed as nitrogen, roughly, if we divide by 3 we will get pretty close to it, don't we? A. Very close to it, yes, sir.

Q. Did you make more than one such a test to ascertain the relation— A. Yes.

Q. Of the strength of concentration of this gas, depending upon the amount of NO₂ used for bleaching? A. I did.

Q. You may give it.

A. I made three experiments. The first one, the flour that I used in the first experiment was bleached with 18.6 parts of NO₂ in the million, and the flour in the second experiment was bleached with 38.4 parts of NO₂ per million parts of flour, and in the third experiment the flour was bleached with 74 parts of NO₂ nitrogen peroxide to the million of flour.

Q. Now, can you give us the result of the parts of NO₂ in the million part of air, in equilibrium with the flour?

A. Yes, I have put it in the form of a table here, and perhaps it will be clear if I give the table—simply put the table up here.

(Witness here produced certain tables which were marked by the stenographer "Government's Exhibits 23, 24, 25 and 26", respectively.)

Q. You may go on by the use of your table.

A. I have tabulated here the results obtained with bleached flour, with different amounts of nitrogen peroxide. I have in this column the amount, the number of parts of nitrogen peroxide used in bleaching a million parts of flour, 74 in this experiment 74 parts of nitrogen peroxide we used in bleaching a million parts of flour, and then the air that had been in contact with that flour, that air was removed by the apparatus I showed you, and it was analyzed and was found to contain five parts of nitrogen peroxide in the million parts of the air, expressing everything in parts per million. In this other experiment where I used the flour, it was bleached with 38.4 parts of nitrogen peroxide per million of flour. I found that the air which had been in contact with that, which came to equilibrium with that, contained 1.4 parts of nitrogen peroxide per million. And then in this last experiment here where the flour was bleached with 18.6 parts of nitrogen peroxide per million of flour, the air in equilibrium with that was found to contain .6 parts of nitrogen peroxide per million of air. Now, the thing that is made here, the result that is important, is that the parts of nitrogen peroxide found in the air which was in contact with these various flours, that these parts of nitrogen peroxide vary; you see the nitrogen peroxide in the air increases with the amount of nitrogen peroxide used in bleaching the flour.

Q. Does it increase ratably?

A. Here we have 18.6 used in bleaching, and we find .6. Here we have 38.4 and we find 1.4, where you see this is approximately, 38.4 is approximately twice 18.6, and 1.4 is more than twice 0.6. In the next experiment, however, that is about 74, something like four times 18.6—yes just about four times, and you see with 5.0 we have about eight times a little over

eight times 0.6; in other words, the nitrogen peroxide in the air in contact with flour increases more rapidly than the amount of nitrogen peroxide used in bleaching the flour.

Q. Now, from that class of experiments are you able to state whether or not the NO₂ remains present as such in the air mixed with the flour?

A. The fact that we get a changing concentration or amount of nitrogen peroxide in the air in contact with these flours allows us to draw and forces us to draw an important conclusion about the relation between that nitrogen peroxide and the flour. It is a well known physical chemical method of ascer-

taining whether or not we are dealing with a chemical
981 combination or a solution.

Q. What is the fact here, does the NO₂ used to bleach the flour enter into chemical combination in whole or remain in solution in whole, or is it part chemical combination and part solution?

A. The results obtained here show us that we are dealing with a solution. Now, further than that we may show that the nitrogen peroxide which comes in contact with your flour, may be there entirely as a solution in water, or it may be there in part as a solution; it must be there in part as a solution, at all events, it cannot all be there chemically combined.

Q. If the NO₂ gets² into the flour all chemically combined with bases in the flour to form nitrites by the nitrous acid and nitrates by the nitric acid, would any of the NO₂ found in the air in the flour and be subject to be eliminated in the manner that you have described?

A. Please have that question again.

(Question read by the reporter.)

A. Under those conditions, under the condition that we have the NO₂ combined with bases, forming nitrites and nitrates, it would be impossible to remove any of it by this method.

Q. Well, if the NO₂ simply came in contact with the water contained in the flour and formed a nitrous acid in solution in the water, would that by means of the methods employed by you come back in the form of gas?

A. Under those conditions it would be possible to remove nitrogen peroxide from the flour and to condense it with the water to a liquid, a liquid showing nitrous acid.

Q. Before coming here, at Princeton, did you make any studies or investigation to ascertain whether or not nitric reacting material would be found in bread made from flour bleached by NO₂? A. I did.

Q. And what did you find in that regard?

A. I found that the bread made from flour bleached by NO₂ showed this re-action, that is to say, taking such bread and condensing liquid from it I found nitrous acid in that liquid.

982 Q. Where did you get the flour to make that test?

A. The flour was sent to me from Chicago by Mr. A. L. Winton, and it was—

Q. Designated by some number?

A. It was labelled "I S 354 B".

Q. Before making the bread did you test it by the Griess test for nitrites?

A. I made a determination of the nitrites in this flour and found 2.47.

Q. Parts per million?

A. Parts per million expressed as nitrogen peroxide.

Q. And in the bread?

A. In the bread made from this flour I found about one-third of that.

Mr. Smith: What are your figures?

Q. Have you the exact figures, Mr. Smith would like to know.

A. It was 9, I think I got .3 parts in the million of nitrogen and that would be, expressed as NO₂ would be—

By Mr. Smith:

Q. A little less than one part?

A. A little less than one part, approximately one part.

By Mr. Butler:

Q. 2.47 in the flour and .9 in the bread?

A. 0.9 in the bread expressed as nitrogen peroxide.

Q. That may be reduced to the expression of nitrogen by dividing by 3 roughly. Now, did you make any other study or experiment or determination to find out whether or not nitrites would remain in bread made from bleached flour if bleached by NO₂?

A. Yes, another sample of flour was sent to me by Mr. J. L. Lynch from Atlanta, Georgia, and this flour was labeled "I S 3989 B".

Q. What was in the flour?

A. I found nitrites in the flour, and there was two and a half parts per million expressed as NO₂.

Q. And in the bread?

A. In the bread, I will refer to my notes, the bread showed .6 parts per million.

Q. Did you yourself bleach some flour and ascertain whether or not the bread made from that would contain nitrites?

A. Well, we did bleach some flour, some of the Kingston flour, and had soda biscuits made from this Kingston flour, and we found nitrites by the Griess test in the soda biscuit.

Q. Now, by the way, did you try to pump out NO₂ out of soda biscuits?

A. Yes, we tried to, we put the biscuits in a vacuum and condensed the liquid from it and this liquid, however, did not show nitrites, that is to say, only a suggestion such as we might expect to find in the reagent.

Q. What is the reason for that?

A. Because, I think the reason for that is that the nitrites and nitrates were combined with the sodium in the soda biscuit.

Q. That is, you think the NO₂ had entered into chemical combination with the sodium?

A. Chemical combination with the sodium.

Q. And made the chemical compound of sodium nitrite?

A. Yes, sir.

Q. And that sodium nitrate was also made and from these chemical combinations you could not pump out the gas or the liquid containing it as you did in the case of the flour and of the bread?

A. That is a conclusion I drew in connection with that experiment.

Q. Now, Professor, have you made any ascertainment of the amount of NO₂ recoverable by this method as compared with the amount employed to do the bleaching? You have shown here that you used in one instance 18.6 parts of the gas per million to do bleaching, and that the amount recovered is .6, I think that has been covered by your former testimony, hasn't it?

A. That is the amount of nitrogen peroxide in the air that has been in contact with that flour?

Q. Yes. But it is possible to recover more than that; that is qualitative, not quantitative.

984 Q. Yes, sir, now, how may more be recovered?

A. If I should use this vacuum apparatus and put my flour in there and continue it until I had removed all of the moisture from that bread, or all the moisture from the flour, in the neighborhood of 10 per cent of moisture, if I continue the experiment until I have removed all of that moisture, and we can do it that way, then I would get out practically all of the nitrous acid and nitrogen peroxide from my flour, but there is an easier way to do it than that; that is rather a long

experiment, and we can do it somewhat more easily in the following way: Taking a glass—

Q. You are now referring to this exhibit?

A. This Exhibit 26 B, faking a glass receptacle of this kind which the chemists call a desiccator, it is simply a glass container with a top, and around the joint here we put a little fat, that makes it tight, so we can evacuate it, here is a glass tube, and it is a well known laboratory instrument. Now by putting the bleached flour in the bottom of this and over it in a little glass tray a little potash, that contains a little amount of caustic potash which will rapidly absorb nitrous oxid; then by removing this, you see, so as to allow the nitrite to rapidly come up here, it is possible to absorb the nitrites in that caustic potash even more completely than you can by condensing them with the water; and this experiment was carried out, we used 18.6 parts of nitrogen peroxide in bleaching our flour, 18.6 parts to the million of flour, and it was put into a desiccator such [a] represented here, a little caustic potash was placed in a dish above here, and then it was evacuated, and allowed to stand for twelve hours; then it was opened, this dish was taken out and this solution of caustic potash was washed out and diluted, and the nitrites determined in it; then a little more caustic potash was put in, it was put back here and again evacuated and allowed to stand for a couple of days, and then a third time it was opened until we got practically no more nitrogen peroxide, by allowing it to stand in there, and in that way it was possible to get an idea of the amount of nitrogen peroxide that it was possible to remove from this particular flour.

Q. Well, now, how did that amount compare with the amount used to treat it, have you the figures on that?

A. Yes, sir, I have the figures on that. The flour was bleached with 18.6 parts of nitrogen peroxide, and I recovered from that, from a 10 gram sample of that flour, from a 10 gram sample of that flour I recovered with the first amount of KH that was put in here, I recovered .0000061 grams of NO₂.

By Judge Scarritt:

Q. What would that be in decimals?

By Mr. Butler:

Q. .0000061? A. .0000061 parts of NO₂.

By Judge Scarritt:

Q. How much of a gram?

A. Well, that would be sixty-one ten millionths of a gram.

By Mr. Butler:

Q. That was the first amount?

A. That was the first amount, and a little more caustic potash was put in, in a little dish, and it was put in there

a second time, stood for a couple of days, I believe it was two days, and the product I recovered—no, excuse me, I must correct that figure that I gave you, that was one of the test numbers; the first time I recovered .0000398 grams, the first time I recovered .0000398 grams of NO₂.

Q. .0000398? A. Three ninety-eight ten millionths—

Q. Of a gram?

A. Yes, sir. The second time I obtained .0000061 grams of NO₂, and the third time .0000046.

By Judge Scarritt:

Q. That is forty-six?

A. Forty-six ten millionths. I am afraid that I will have to correct that first figure again.

By Mr. Butler:

Q. Your figures do not correspond with the memorandum you gave me.

A. No, the first time it was .0000291—that corresponds, does it not?

986 Q. That is right.

A. The second time .0000061 grams of NO₂ and the third time .0000046 grams of NO₂.

Q. Which added together?

A. Which added together gave the .0000398 grams of NO₂.

Q. Now what percentage of that is, bringing it to the same terms of the total amount of NO₂ employed?

A. Therefore I obtained the .0000398 of NO₂ from the 10 gram sample of this flour which was bleached with the NO₂.

Q. Now when you say the first time, second time and third time, does that mean different parts of the same ten grams?

A. No, the ten grams remained in the desiccator all the time, and the first time I did not get it all out.

Q. Yes.

A. I got the figure that I gave you; the second time I did not get it all out, and the third time I got still some, and perhaps I did not get it quite all out that time.

Q. So that these three quantities all came from the same flour?

A. These three quantities all came from the same 10 grams of this flour.

Q. And each was a part of the same experiment?

A. Each was a part of the same experiment.

Q. Yes, and added together gave you the .0000398?

A. That is correct.

Q. Now what percentage of the 18.6 parts of NO₂ employed to do the bleaching was the part recovered?

A. The flour was bleached with 18.6 parts of NO₂ per million.

Q. Parts of flour?

A. Parts of NO₂ nitrogen peroxide per million of flour; therefore in 10 grams there would be .000186 grams of NO₂.

Q. Give me that again.

A. In 10 grams of the flour?

Q. Yes, that is right.

A. There would be .000186 grams of NO₂ nitrogen peroxide.

Q. And you recovered .0000398, approximately .00004.

987 Q. That would be what percentage recovered of the total added?

A. That is 21 per cent, 20.9 per cent—you may call it 21 per cent or one-fifth.

Q. Have you ever seen an Alsop bleacher at work?

A. I have.

Q. When and where?

A. Well, last Saturday I saw an Alsop bleacher in the Rex mill in Kansas City, Kansas.

Q. Is that the Southwestern Milling Company?

A. Southwestern.

Q. Did you see it bleach flour? A. I did.

Q. What kind of flour did you see it bleach? Do you know the brand of it, the name that it is commonly sold under?

A. I believe it is "Aristos" flour.

Q. Now did you take some of the gas after it left the gas generator and passed through a holder,—well, in the first place, I think I will be glad if you will describe the essential features of the plant.

A. The plant consists of a dynamo for furnishing the electric current and what we may call a generator.

Q. How many gas generators do they have here in this flaming arc arrangement?

A. I do not know just how it is designated but I should call it a double unit, that is there were two arcs.

Q. Well, there was only one generator but two arcs and the generator?

A. Two arcs in that, they were connected together, so I should call it a double unit; the generator was a 500 volt direct current machine 7½ kilo-watts, I believe, about a little over a thousand R. P. M.

Q. How far was it from the agitator where the flour was bleached, roughly, you did not measure it?

A. I think it was two floors below the agitator, and do you wish, shall I describe that too?

Q. Yes, was there a tank between the gas machine and the flour agitator? A. There was.

Q. Where was that?

A. That was on the floor, between the generator and the agitator.

988 Q. Yes.

A. The gas or the air was forced into the space where the arcs are by means of two cylinders, and there they were changed by the flaming arc in part to nitrogen peroxide; then these gases pass through pipes, two inch pipes, they seem to be, or two and a half inch pipes, to the floor above, where there was a cylinder; it may have been about 18 inches, something like that, in diameter, and something like 6 to 8 feet in length, and from that cylinder it passed on up to the agitator through two inch pipes or two and a half inch pipes, and into the agitator, and the flour entered at the same end.

Q. Well, was it arranged so that the gas after passing this tank between the agitators and the gas machine, so you could run some gas to different agitators?

A. Yes, it was arranged—they have four agitators there, and it was arranged so that the gas could be distributed to the four agitators, that is to say, from the 2 inch pipe there were pipes running to each one of the four agitators and there were cocks there to regulate the amount of gas that flowed in to the agitator, a pipe for each agitator.

Q. Did you take some of the gas made by that machine?

A. I took a sample of the gas as it was passing into one of the agitators, that is to say about an ounce.

Q. At the time when you took the sample do you know the amperage that was on?

A. Yes, sir, the machine was running uniformly and showing about four amperes.

Q. And the voltage?

A. Well, it was a 500 volt machine.

Q. And how many agitators were taking the gas through it? A. Four.

Q. Now where did you take the gas?

A. I got the gas—

Q. And tell how. A. From the pipe about a foot before—about a foot before it entered the agitator.

Q. How did you do that?

A. At that point there was an elbow in the pipe, and there was a screw cap, two inch screw cap.

Q. On the elbow?

A. Yes, and it was—before we unscrewed that, we did
989 unscrew it, and then we procured a cap of the same kind and drilled a hole through it, about a quarter of an inch hole, and inserted a glass tube into that hole and waxed it in, and made it tight with wax, and then we inserted this cap with the glass tube into the elbow of the pipe, and then I used a flask—

Q. Is this it?

A. I can perhaps explain it best this way.

Q. Well, you might as well mark that while we are going along.

(The flask was marked by the stenographer "Government Exhibit 27")

Q. Exhibit 27—go on.

A. Now this may represent, if you like, the glass tube that I sealed into the hole in the cap, so that this glass tube extended inside of the pipe and outside and was open; then I had with me a flask of this kind.

Q. Like Exhibit 27?

A. This was one of the flasks that I took with me, "Exhibit 27", and that flask had been pumped out with a mercury pump so that there was no air in it and sealed up hermetically, the glass was sealed so that whenever you break the point, the air will rush in, and you get this volume of gas. On the inside tube, one like this, that was placed through that cap, I placed a piece of rubber tubing, and I put a little bit of cotton wool in that angle of the tubing, so as to filter the air from any dust flour or anything of that kind. Then I put a little bulb on the corner, on the point of this end without breaking it and put this over it, then it was possible with my finger there through the tube, to break that tube, and as soon as I did that, the air began to rush in from the pipe and only from the pipe, so that I obtained a flask full of the bleaching gas. After I had obtained the flask full, holding this bandage, this rubber tube here, and removing it, I then took a little alcohol lamp and sealed it and so it was hermetically sealed, and I brought that gas with me, and it was the gas taken just before it entered the agitator when the apparatus was running under normal conditions.

Q. Now on the same occasion did some other gentlemen who were with you take some gas, after shutting off the cocks running into the other agitators?

A. Yes; Prof. Acree and Dr. Mitchell took a sample or flask from that same tube from which I had taken it.

Q. They took the gas out of the same place that you got it?

A. Yes, sir.

Q. And in the meantime had some of the pipes leading to some of the other agitators been shut off?

A. I believe that that is true.

Q. You did not observe yourself?

A. I did not observe it myself.

Q. Now was there some flour bleached by this machine as it was running at the time when it was running in the same way as it was at the time you took out the gas?

A. The machine was bleaching the flour at the time I took out the gas.

Q. Did you observe the flour before it passed into the agitator and after it came out, comparing some that had been through with some that had not been through?

A. Immediately after I collected a sample of gas I collected a sample of flour at the exit of the agitator, and then immediately collected a sample of the flour that was coming into the agitator, at the entrance, that is to say, I got the unbleached flour and the bleached flour immediately after I had collected a sample of the gas that was entering the agitator and everything, as far as we could observe, was running under normal conditions.

Q. Did you take that flour that was so bleached and test it and see whether it contained nitrite reacting material?

A. That sample was brought back to the laboratory here and analyzed for nitrites and nitrites were found in it.

Q. What amount?

A. I obtained .55 parts of nitrogen as nitrites per million which would be about 1.8 parts of NO₂ per million.

Q. Computed as nitrogen it was about one-half of one part per million? A. .55.

Q. Did you compare the color of the two?

A. I used the regular or the usual method of determining nitrites or our usual method.

991 Q. And did you measure the amount of nitrites the same way that you have described as having measured it in the flour seized?

A. The liquid condensed from the flour seized?

Q. Yes.

A. The principle was the same.

Q. Now what I am trying to get at, I want to compare your finding in that was two and a half parts, was it, of the flour seized?

A. Yes, sir, two and one-half parts.

Q. That is of nitrogen peroxide, of NO₂?

A. That is in the liquid condensed form.

Q. Now what I am trying to get at, I want to compare in the same terms the amount of nitrites in the flour seized here in this case, compared with the amount that you found in this flour that you saw bleached?

A. Well, the two and one-half you will remember was the amount of nitrites, nitrous acid I found in the liquid condensed from that flour; that does not represent the amount of nitrites in the flour.

Q. Well, did you determine the amount of nitrites in the flour seized, did you yourself? A. I did not.

Q. No, you did not?

A. It has been determined here, though.

Q. Yes, the determination was 1.8 by Winton and 2.3 per million, computed as nitrogen, as against .55 of this com-

puted as nitrogen. That is what I wanted. Did you observe any difference in the color of the flour, was it discernible when you brought the two flours together?

A. It was discernible, that is to say, there was a difference in the color of the sample taken from the exit of the agitator, and the sample taken at the entrance of where it entered the the agitator.

Q. Which was whiter?

A. The flour that was taken from the exit was the whiter of the two.

Q. The flour that went through the agitator?

A. Yes, sir.

Q. Was there much difference—pretty hard to—

A. It was discernible but not very different.

Q. Did you determine the degree of concentration of the gas that was used? A. Yes.

992 Q. How much NO₂ was in your flask?

A. On returning to the laboratory the flask was opened and a little caustic potash was allowed to flow into the flask; by letting it flow on the walls it soon absorbed all of the nitrogen associated in that sample of gas that I collected, the sample of gas that was used in the bleaching. And that was determined with the Griess test and then it was calculated, the parts of nitrogen peroxide in a million parts of air.

Q. How many?

A. I found 300 parts of nitrogen peroxide in a million parts of the air.

By Judge Scarritt:

Q. Of that condensed in your bottle, that you took out of the bottle?

A. No, of the sample of the Alsop gas collected just before it entered the bleacher, I found 300 parts of nitrogen peroxide in a million parts.

By Judge Scarritt:

Q. In that glass bottle? A. Yes.

By Mr. Butler:

Q. That is the degree of concentration of the medium used to bleach the flour in this particular case, am I right about that? A. Yes, it is.

Q. And you analyzed how soon after bleaching?

A. We got a sample in the morning and the analysis was made in the afternoon, Saturday, last Saturday.

Q. And the amount found in the flour was made the same day? A. Made the same afternoon.

Q. And that was .55 of one part per million computed as nitrogen. Now you said that your determination showed that under normal air, that there was less, how much less you

couldn't tell, than one part per 100 millions of this nitrite reacting material; is that the way I understood you?

A. I believe I made that statement to you.

Q. Well, you made it this morning on the stand, didn't you, that you made some examinations on that question.

A. I don't recall that I made it.

Mr. Smith: You have not reached that point yet.

993 Q. I thought you did say. Well, what is the fact about that, have you yourself examined ordinary atmosphere to determine how much nitric reacting material, if any, discernible is in it?

A. I have this to say, I have an experiment that gives me an idea of the amount, and I also state now that I recall having stated—made a statement about it in explaining those nitrite experiments.

Q. You did, no doubt about it, and that was that you determined that it was less—that your tests have disclosed one part to a hundred million but that it did not disclose any—

A. Yes.

Q. So your conclusion is it is less than one part to the hundred millions?

A. The air then outside of the laboratory at Princeton at the time that we were making the experiments at the time that I made the experiment showed less than one part of nitrogen peroxide to ten million parts of air.

Q. To ten millions or a hundred millions, give me the whole answer.

A. It is .01 and it is a hundred—I am in error.

Q. Taking hundred millions as the basis this that you found is the Alsop machine that bleached to the degree that you stated would be thirty thousand parts to the hundred millions?

A. Yes, sir, thirty thousand times.

Q. That is thirty thousand times as strong, is that a fair way to express it? A. Yes, sir.

Q. Did you determine how long it took this flour to pass through the agitator out here at this Rex mill?

A. Yes, with the aid of the miller and Mr. Winslow we made a determination of the length of time needed for flour to pass through the agitator where it was being bleached.

Q. How was that done, you better describe that agitator?

A. The flour was passing through uniformly and Mr. Winslow took a handful of middlings or grit, or something of that kind, and threw it in at the entrance of the agitator, and the miller having his hand on the exit was able to detect the—

By the Court:

Q. When it came out?

994 A. When it came out, and I held the watch; the first time I got twenty seconds; the second time the men reversed; Mr. Winslow determined the time at which he first gets the grit coming out below, and the miller put it in above and we got twenty-one seconds perhaps that is greater accuracy than we could claim, but we got those two observations, I should say about one-third of a minute was the time.

By the Court:

Q. What is the length of the agitator, 6 or 8 feet?

A. I should say it was fully 8 feet, and it was a horizontal agitator, there was a shaft running through the middle of it, and there were arms—fans, so when that would come down, they picked up the flour at the bottom and threw it along, threw it up and over it would be thrown along a certain distance, and when another fan would pick it up and throw it again.

Q. So that it was subject to the influences of this nitrogen peroxide gas for about twenty or twenty-one seconds?

A. For approximately one-third of a minute.

At this point the Court took a recess until 2 o'clock p. m.

Monday Afternoon Session.

Pursuant to adjournment, court met at two o'clock p. m., Monday, June 13, 1910, and proceeded with the trial of said cause further as follows:

G. A. Hulett, being recalled, was examined further, and testified as follows:

Direct Examination

By Mr. Butler:—Continued.

Q. I intended to ask you, this morning, when we were talking about the gas which you took off the Alsop bleacher,
995 at the Rex Mill, last Saturday, whether or not you could see the color of the gas in the flask.

A. When I took a flask, of the same kind of glass, and the same size, without any—I will say with just pure air in it, and held the two flasks against a white background, it was very plain to see that the flask containing the Alsop gas was slightly reddish in color. It was visible.

Q. Now, as to whether it would be observable, unless pains was taken to make a comparison such as you have described.

A. Well, the glass is not entirely uncolored. It has a slight color to it—the glass has, so it is necessary to compare it with a glass of the same kind, and the same size, so as to be able to detect a difference.

Q. Now, assuming that within about two weeks after the bleaching of the flour which has been seized, which was seized on the night of the 31st of March, and subsequently analyzed at Chicago, about the 12th of April, and in St. Paul about the same time, within a day or two, and the testimony indicates that at Chicago there was a determination by the method employed by Dr. Winton of 1.8 parts per million nitrite, computed as nitrogen, and by Mitchell, at St. Paul, 2.3 parts per million, computed as nitrogen, and in the flour which was bleached under your observation, Saturday, at the Rex Mill in this city, your determination was .55 of one part per million, computed as nitrogen, and the determination of the quantity of gas in the air was 300 parts per million. Now, on that basis of facts, are you able to express to us an opinion as to the concentration of the gas used by the manufacturers of the flour that was seized at the time they bleached this flour that has been so analyzed?

A. Well, if the conditions—all other conditions are the same, all other conditions than the concentration of the gas with which you are bleaching—if all the other conditions are the same, it would require something more than a proportionally greater concentration. In other words, I found here 300 parts of nitrogen peroxide in the Alsop bleaching gas, as it went into the agitator, and the flour passing through there, with that gas, was bleached .55 parts nitrogen per million. Now, if we were to have a greater bleaching, we would have to have more concentration, more than 300 parts nitrogen peroxide in our Alsop bleaching gas, and if we wished to double the bleaching, and have twice the bleaching from the results I gave this morning, we would have to have twice the concentration. In other words, if we wanted to have three times the amount of bleaching, and the seizure flour has approximately three times the amount of bleaching, then we would have to have something over three times the concentration of nitrogen peroxide in the gas that did the bleaching.

Q. 1.8 is about three and one-third times .55? A. Yes.

Q. That would indicate about 1,000 parts per million?

A. I would conclude that, if the rate of passing the flour through their agitator was similar to this experiment that I observed, that the Alsop gas used in this bleaching of this seizure flour must have been something over 1,000 parts in a million, of nitrogen peroxide.

Q. Now, referring again, to one matter I neglected to ask you about, showing the amount that you recovered by the KOH method, in the instance that you treated the flour by 18.6 parts per million, you recovered, you say 20.9 per cent of the amount employed? Is that right? A. That is correct.

Q. Now, I want to find out, assuming that you recovered it all, the full, theoretical amount, how much would be recovered?

A. If the nitrogen peroxide dissolves in the water in the flour that is on the surface of the little grains of flour, it forms nitric and nitrous acids, we will say, in chemically equal parts. We would have, then, one chemical equivalent of nitric acid, and one of nitrous. Now, in this method, removing the nitrous acid in a vacuum, as I have employed, if we could remove all of that nitrous acid, and, employing the KOH method, I might expect to have one-fourth as nitrite, in the KOH—

997 a fourth of the amount that was originally added to the bleached flour.

Q. But, in this Figure A, on Exhibit 26, by your three draws you succeeded in getting about 21 per cent—20.9?

A. Approximately 21 per cent.

Q. Now, if you get it all, it would have shown 25 per cent of NO₂, as I understand it.

Mr. Scarritt: Theoretically?

By Mr. Butler:

Q. Theoretically.

A. On the assumptions that I have made.

Q. Yes, that is what I mean. So that you counted it about eighty-one and one-fourth per cent of the full, theoretical amount? A. Approximately that, yes.

Q. From your examination, are you able to express an opinion which acid it is—that is, the nitrous, or the nitric, or whether both of these acids operate to bleach the flour, to reduce the color to white?

A. In this experiment we have referred to, where the flour was bleached with 18.6 parts nitrogen in a million, I removed practically 21 per cent of that nitrogen peroxide, and after the flour was taken out of there, I compared it with some other of the original—some that I did not put in the vacuum, and I could notice no difference in color. In other words, after removing practically all of the nitrous acid, the flour, as far as this color is concerned, was the same. Consequently, I would be inclined to say from that, that the nitric acid, rather than the nitrous acid, did the bleaching, because, after removing the nitrous acid, the flour was still bleached, and, in connection with that, we did an experiment in which we had a dilute solution of nitric acid. We took pure nitric acid, as we could, so as to have it as free as possible from nitrite, and I shook the flour up with that acid, and we shook up a sample of unbleached flour with water, and then we
998 filtered both of them, and compared the two. The one which was shaken up with nitric acid showed distinct bleaching, so, all together, I am inclined to say that it is the nitric acid that does the bleaching.

Q. At any rate, you know that nitric acid will bleach flour?

Q. Nitric acid did bleach flour, in this experiment.

Q. And, when you drew off eighty-one and a quarter per cent of the total, theoretical amount of nitrous acid, the flour still remained the same color?

A. That is correct. The flour was still bleached.

Q. Now, as respects the effect upon flour treated with nitrogen peroxide gas, mixed with atmospheric air, can you tell us whether or not there is any difference in the effect upon the flour, depending upon the means of producing the nitrogen peroxide gas—that is, whether it is produced by chemicals, the flaming arc, or otherwise?

A. I should say that, in general, there would be no difference. Nitrogen peroxide, if it is nitrogen peroxide that does the bleaching, as my experiments indicate, it is immaterial whether you prepare it by the flaming arc, or whether you prepare it by reducing nitric acid, or any other way you like. When you get your nitric acid of a common concentration, and bleach your flour with it, you get the same result.

Q. And as to the chemical changes in the flour, if any, other than the effect upon color. Will those changes be the same, if nitrogen peroxide be used under the same circumstances, without any regard to the source of the production of the nitrogen peroxide gas? I am not sure that I make my question clear.

A. Your question is perfectly clear. However, it might need a little explanation. If there was nothing else introduced into the air, at the same time, that would affect the reaction, it would be the same.

Q. Yes? That is what I desire to have you assume.

A. Yes.

Q. The conditions exactly the same, except that in one
999 instance the nitrogen peroxide gas is the result of the flaming arc, and, in another instance, it is produced as the result of the use of chemicals, like nitric acid decomposed by electrodes, or the action of nitric acid upon soft iron, as in one of the processes which is here described. Now, with that assumption, you say the changes would be the same?

A. The changes would be the same.

Q. Now, as to the effect, as to whether or not the effect upon the flour bleached by the Alsop process, would be comparable with the laboratory method of applying the nitrogen peroxide, which has been described here, by some of the witnesses, as in essential particulars, the placing of the relatively small amount of flour in a large bottle, and then, after the introduction of the nitrogen peroxide into the air above the flour in the bottle, then shaking it for a time?

A. I should say that there would be no other difference than that due to a possible difference, if we have different concentrations of nitrogen peroxide in the gas used for bleaching.

Q. Now, as to the method you saw employed in this particular agitator, down there. As I understood you, this agitator was cylindrical in shape, in 18 inches to 2 feet in diameter, and 8 feet long, or such a matter, speaking roughly.

A. That is my estimate of it.

Q. And which end was the nitrogen peroxide gas introduced into?

A. It was introduced the same end the flour was introduced into it.

Q. And I understood you to say that there were wings, that I got the impression—I don't know that you said that,—but, they were screw shaped.

Mr. Scarritt: Fans.

By Mr. Butler:

Q. Screw shaped, but not continuous? Is that the idea?

1000 A. I gathered that impression. I didn't get a good chance to see the inside of it, but that is what I understood.

Q. Now, as to the length of exposure to the same quantity of nitrogen peroxide gas. For example, what I am trying to get at, is, whether there would be any substantial difference upon the flour, which you saw bleached, assuming that the same amount of bleaching medium was used for the flour, moving more rapidly, or more slowly, or differently.

A. I regard it as merely a question of time that the flour is in contact with the gas.

Q. How long would it take for the flour to take into itself, either in solution or chemical combination, the gas employed?

A. I have no quantitative information on that point, but my experiment in bleaching flour, where I introduced the gas in a flask, it showed me that the gas was taken up very rapidly, indeed.

Q. Now, when you say "very rapidly indeed", what do you mean?

A. I mean this, that in my experiment, I had a flask with 500 grammes of ordinary flour, and I introduced one cubic centimeter at a time, and I could see a red gas form, as long as the gas went in there, and then, on once shaking it,—just giving it a quick shake, it disappeared, so far as vision was concerned, so, it indicated to me that it was absorbed very completely and very rapidly. I should say probably less than a second—distinctly less than a second. That is to say, provided you have your flour thrown up through the atmosphere.

Q. Now, does the degree of bleaching, or the amount of bleaching, depend in any degree, in your opinion, upon the concentration of the medium?

A. It certainly does. It is, roughly speaking, proportioned to that, although not quite proportioned to it.

Q. Now, the concentration of the medium from an Alsop machine, such as you observed, depends upon what elements?

A. Well, as I observed that machine, it seemed to me
1001 that it was running uniformly, and preparing about the same amount of nitrogen peroxide, in a unit of time. That is to say it was preparing a given amount of nitrogen peroxide in a unit of time. Now, if you pass a certain amount of gas through the boxes where this is formed, you would get the nitrogen peroxide, in that gas. If you passed a foot through—a cubic foot, you would have had, in that, cubic foot the gas formed in the unit of time. Now if, in that same unit of time, you passed two cubic feet through there, I should say you would have it in two cubic feet, or half the concentration.

Q. Well, it would depend upon the power of the current, and frequency of the arc, and flame?

A. Yes, it varies with all those factors.

Q. And would depend largely upon those factors, would it not? A. Yes, it would depend on those factors.

Q. There might be some others, but at least on those?

A. Yes.

Q. Now, for example, suppose you shut off the outlet, from the expansion tank, we will call it—is that a good enough word for this tank in the middle (to Mr. Smith)?

Mr. Smith: Suits us, if it does you.

By Mr. Butler:

Q. Suppose you shut that off, beyond the expansion tank—shut off the escape of air, and continue to run the machine, what effect would that have upon the degree of concentration?

A. If I understand your question, or your description, it would decrease the rate at which the gas was flowing through the system, and, consequently, if you are forming nitrogen peroxide at the same rate, that would increase the concentration of the nitrogen peroxide in the air.

Q. And, suppose that the flow from the expansion tank, or from the gas generator, was obstructed by shutting off an outlet, or turning a valve part of the way, or by a sharp turn
1002 in the pipe, or any other manner of obstruction, how would the concentration of the medium then compare with the same, if the outlet of the medium was relatively unobstructed—that is, a straight pipe, and the like?

A. The obstructed flow, the rate of flow is less through the system, and the concentration of the nitrogen peroxide in the gas becomes greater.

Q. Then, whether or not, under conditions such as you saw, where it was possible to have several outlets, with various agitators, or only one, then, I would like to have your opinion whether or not these conditions would vary the degree of concentration of the medium. A. Yes, they certainly would.

Q. If it was all shut up, and it all had to pass through one valve—

A. (Interrupting) That would restrict the flow through the system, and I would expect greater concentration of the nitrogen peroxide in the gas.

Q. Do you know whether or not this flaming arc, the making and breaking of contact between two electrodes connected with sources of electricity, is employed for the commercial manufacturing of nitric acid?

A. Yes. The flaming arc is being used very extensively, at the present time, to prepare nitric acid from the atmosphere, particularly in Norway, where they are preparing it on a commercial basis. There is one concern there, the Berkland-Eyde Company that, this year, is making something like 20,000 tons of nitric acid by the flaming arc, in air, and, this next year, the amount of horse-power—electrical horse-power that they have, would indicate that they will multiply that output by ten. There is another large German concern, that is also manufacturing it, on a large scale, from the air, by means of the flaming arc, manufacturing nitric acid.

1003 Q. Now, the concentration of NO₂ with atmosphere employed for the manufacture of nitric acid on so large a scale,—what is that?

A. In the manufacture of nitric acid with the electric arc, of course, the important thing is to get as large a yield as they can from their electrical energy, and they are able to get a concentration of nitrogen peroxide of about 15,000 parts in a million parts of air.

Q. Then, for the purposes of comparison, your determination was that there was less than one part NO₂ to the hundred million in normal air?

A. In normal air there is less than one part nitrogen peroxide to 100 million parts of air.

Q. And that the air, in bleaching flour, which you treated by 74 parts to the million, of NO₂, you told us contained 5 parts to the million?

Q. That is, according to the air, in contact—the equilibrium with that flour, containing nitrogen peroxide,

Q. That would be 500 parts to the same hundred million?

A. Yes.

Q. And, on your estimate that the flour, bleached by the claimant here, and which was seized and analyzed, was 1,000 parts to the million in the gas that bleached the flour—

A. (Interrupting) That's the estimate that I made.

Q. That would be 100,000 parts to the hundred million, and, in the commercial manufacture of nitric acid, it is 15,000 parts, or fifteen hundred thousand parts to the hundred million? A. That is correct.

Q. If the nitrous acid formed in the flour by the bleaching process combined with a base like sodium, or calcium, or magnesium, in the flour, you may tell us whether or not this pumping method which you employed would release from the nitrite of sodium, or potassium, or magnesium, as the case may be, the nitrous acid so chemically combined.

1004 A. No, it would not.

Q. Now, in the case of the biscuit made from the bleached flour, I understood you to say that you could procure none of this nitrous acid by the pumping method.

A. From the biscuit made from the bleached flour—the soda biscuit?

Q. Yes.

A. I was unable to get nitrite tests, excepting the merest traces, in the liquid condensed from this biscuit, or pumped out of it.

Q. And that was because of the chemical composition?

A. Because the nitrogen peroxide was chemically combined with the soda. That is the reason I have for not getting it, in that case.

Q. Do you know whether or not this mill, called the Rex Mill, which you saw, was regularly bleaching for commercial purposes?

A. No. When I went there, as I remember it, the bleacher was not in operation, and I understand that they were not regularly bleaching. They did this as an experiment, and I asked them to run it under normal conditions, and they let it run a considerable length of time, before the experiment was made.

Q. Your understanding is that the "Aristos" flour is not a bleached flour?

A. Is an unbleached flour. I had a sample of the "Aristos" flour, and found it did not contain nitrite.

Q. How did you get that bread into that bottle (indicating)?

A. Well, this thing was made, here, in the laboratory. This was just an ordinary flask,—round bottomed flask, and opened here. I put the bread in. I first sealed on this tube, here, and then this tube, and put the bread in, and then I

sealed that, after the bread was in, with a little bit of a fine-pointed flame. It is simply a matter of glass blowing.
 1005 It is easy to blow a thing of that kind, if you have had the experience.

Q. By the way, did you treat "Aristos", or any of the unbleached flour that you got, for nitrite reacting material, in that sort of a thing, to find out whether it would give the color tests, such as is shown by Exhibit 21 and 20?

A. I obtained a sample of unbleached flour Mr. Lynch brought me—Mr. Walsh brought the sample. Mr. D. M. Walsh. It was Number I. S. 12,386-B, Kelley Milling Company, patent, pure white flour, Kansas City, Missouri, and claimed to be unbleached. I tested the flour, and found nothing but traces of nitrite in it. It was a question of whether there was a trace. I put that flour into one of these flasks, pumped out all the air in the flour and then I condensed the liquid from that flour, and added the Griess test. Now, when I added it, I got a little bit of a faint trace of nitrite, but very slight.

Q. The water came down clear? A. Perfectly clear.

Q. Now, which did you apply this to?

A. I. S. 12,386-B.

Q. Government Exhibit 28 is the one to which you added the Griess test? A. Yes.

Q. And Exhibit 29 is the condensation from the very same flour, to which you did not add the test?

A. The liquids were both condensed at the same time, from that particular sample of flour. I divided it into two portions. To this portion, I added the Griess test. To this, I did not, and there is a slight suggestion of a trace of color to this. I don't know that it is really visible, now. I cannot say that I can see any color there.

A Juror: Can you put the Griess test into this other one, now?

The Witness: I can do that, yes. If it is allowable, I would be glad to do it. We have the Griess test here.

1006 Mr. Butler: That is for the court to say.

The Court: How is that?

Mr. Butler: The situation is this, may it please Your Honor. Exhibit 28 and 29 are condensations from the same batch of flour, and the total condensation was divided, and, in the portion contained in Exhibit 28, the Griess test was introduced. It has not been introduced in the portion contained in Exhibit 29, and the juror, Mr. Harmon, asks whether or not there may now be introduced into the Exhibit 29 some of the Griess test.

The Court: It would have to be by agreement on both sides.

Mr. Smith: We will make no objection.

Mr. Butler: We make none.

The Witness: It has already been added to this one.

By Mr. Butler:

Q. Is that bottle which is marked "Exhibit 23" the Griess test? That is the Griess test, is it not, Doctor, which you used this morning to test the fluids from the seized flour, and from bread made from the seized flour?

A. Now, you can observe no color, there, after adding the Griess test, I might say. The color does not develop immediately, particularly in very dilute solutions. I believe, probably, in about ten minutes, though, you will get color. But I think probably it will take that long to develop the color.

Q. What number is that?

A. That is Exhibit 28, as I read it. And this other one, to which I have just added it, is Exhibit 29. Now, in the course of probably ten minutes, the color will develop.

Q. Do you happen to have any of the liquid, taken from 1007 the bleached flour which was seized in this case, to which there has been applied any of the Griess tests?

A. No, I have not. I have put Griess tests into all of it, but I have some liquid, condensed from this bread, to which I have not added the Griess test. That liquid in there (indicating) was condensed from that bread, and I have not added it.

Q. Is it hard to get that out into a tube like this?

A. No, I could add the Griess test, right there, if I had a little file to open the upper tube.

(Witness adds the Griess test to the liquid referred to.)

A. (Continuing) Now, here, again, it is necessary to wait a few minutes for the color to develop.

Q. When the dilution is relatively strong, with nitrite reacting material, does it take long for the Griess test to show the color, indicating the reaction?

A. If you have a strong solution of sulphurous acid, it would come immediately, as soon as you put it in there.

Q. Sulphurous acid?

A. Nitrous acid, I mean. If you have a dilute one, it will take longer and longer to appear.

Mr. Butler: Now, in the meantime, I think it would be well to mark this thing as an exhibit, don't you,—this whole apparatus?

Mr. Smith: I suppose so.

Q. Is this your private property?

A. It belongs to the Pure Food laboratory, and the glass, I made up myself. I have no care for it, though.

Mr. Butler: Then, I guess we will have it marked.

The apparatus referred to was then marked "Government's Exhibit 30".

Q. Now, this fluid in the tubes, which is a part of Exhibit 30, and Exhibit 30 being the apparatus which you used to pump this stuff out of the bread, is a part remaining after you had taken out the fluid which is contained in this tube which you sealed up, and is marked "Exhibit 21", and which you treated before going upon the stand this morning, is it?

A. Yes. This liquid is some that I took from that portion, there, to which I have just added the Griess test.

Mr. Butler: You may cross-examine.

Cross-Examination

By Mr. Smith:

Q. In your examination of these flours, and in your experiments have you been able to extract any nitrogen peroxide, as such, and get it isolated by itself?

A. Nitrogen comes from it, and distills and condenses with the liquid, there.

Q. Well, pardon me, I am not asking you anything about a distillery. I am asking you whether you have been able to get it separated by itself, from any of this flour which you have examined.

Mr. Butler: Just a moment. I ask that the witness be permitted to answer that question that he started to answer.

Mr. Smith: I think he can answer yes or no. He can explain later on, the reason, if he wants to, and Mr. Butler will give him a chance. That is a very plain question.

The Court: You want him to answer yes or no?

Mr. Smith: Yes, sir.

The Court: All right. Answer yes or no, and then, if Mr. Smith declines to let you explain, later on, you may explain.

The Witness: Will you please read the question?

Question read.:

A. May I ask a question?

1009 By Mr. Smith:

Q. No. You can answer the question.

Mr. Butler: Wait a moment.

By Mr. Smith:

Q. If you don't understand the question, you can say so.

A. I don't understand the question as it is.

Q. All right. Have you been able, in your examinations of these flours, or your experiments, to get any nitrous acid, as such, separated from the flour, or from the bread?

A. Separated from the flour and from the bread, yes, sir.

Q. You got it isolated by yourself? A. Yes, sir.

Q. Have you any of it here?

A. I had some there. There was some right there in the tube, to which I put the Griess test.

Q. Well, that is combined with the water, is it not?

A. No, sir, it is not combined with water.

Q. Is that pure nitrous acid in that?

A. That is nitrous acid.

Q. Haven't you also got all the moisture that was withdrawn from the bread in that tube, or didn't you have it all, there? A. Not all that I drew off, is there.

Q. Well, in combination with that, was the water,—the moisture that was in the bread? Is that not true?

A. Combination with what?

Q. I didn't say "combination" at all. Then you had in this tube all the moisture that you could draw from the bread? Is that not true?

A. Not all I could draw from the bread. I can still draw some from it.

Q. Well, you had some water that you drew from the bread, did you not? A. Yes, sir, possibly.

Q. Then, in this moisture that you drew off, or in this liquid that you drew off, what proportion of that was nitrogen peroxide?

1010 A. There was in that liquid, according to my analysis, 1.2 parts nitrogen peroxide per million.

Q. Per million? In a million parts of water?

A. Yes, sir.

Q. You would have 1.2 parts nitrogen peroxide?

A. Nitrogen peroxide. Not as such, no. I would not answer that, exactly that way, without explanation.

Q. Well, not as such. Then, as what?

A. As nitrous acid.

Q. As nitrous acid? All right. Then, in a million parts of this fluid, there was 1.2 parts nitrous acid, was there?

A. That is correct.

Q. It came that near being pure, did it?

A. What is it?

Q. It came that near being pure nitrous acid, that, in a million parts of it, there was only two parts nitrous acid?

A. What do you mean by pure nitrous acid?

Q. I don't know. I am trying to get your idea.

A. I don't know that I can tell you that.

Q. In a million parts of this liquid, though, you had 1.2 parts nitrous acid, did you? A. Yes.

Q. And it was in that state of dilution? A. Yes, sir.

Q. Now, let us see if we can get it so we will all understand it. In a million drops of water, or a million drops of this fluid, you would have had 1.10 drops of nitrous acid?

A. That assumes that the density of the nitrous acid and the water are the same. Nitrous acid is not known, as such.

Q. Well, you say you had it in that state of dilution, did you not? A. I said parts by weight.

Q. Well, in a million ounces of it, by weight, you would have 1.2 ounces of nitrogen peroxide?

A. 1.2. This is from the flour. That is correct.

1011 Q. Now, can you give us the relative proportion, in volume?

A. I cannot, because I do not know the density of HNO_2 .

Q. You are not able to tell, then, what proportion, in volume, would be the nitrogen peroxide?

A. I am not able to tell it, no, sir.

Q. But, in weight, it would be 1.2 out of a million?

A. 1.2 out of a million.

Q. Now, in that flour that you examined, that was sent you by Mr. Winton, you gave your figures as 2.5 parts per million, you say, as what? A. Nitrogen peroxide.

Q. Or nitrite, which?

A. Nitrogen peroxide. I think I gave all my results as nitrogen peroxide. I intended to—parts per million.

By Mr. Butler:

Q. That is, unless expressly stated to the contrary?

A. Yes.

By Mr. Smith:

Q. That would be, measured as nitrogen, how much?

A. Oh, approximately one-third of that. Divide it by 3.3.

Q. All right. Measured as nitrogen. I use this term, because I think that is the term Mr. Winton used, when he gave us his analysis of it. Measured as nitrogen, you found one-third of 2.5? A. Yes.

Q. Which would be about eight or nine-tenths of one per cent?

A. You divide it by 3.3, so it would be seven something.

Q. It would be .7? A. I think it would be about .75.

Q. In other words, in a million parts, you found less than one part of nitrogen peroxide?

A. No. We are talking about nitrogen.

Q. Or nitrogen, I mean. A. I found .75 nitrogen.

Q. Less than one part of nitrogen? A. Yes.

Q. Now, I think Mr. Winton said he found 1.8 parts of nitrogen. How do you account for the difference?

1012 A. I think there is some mistake there. Mr. Winton's letter to me stated—

Q. (Interrupting) Oh, I don't care anything about his letter to you. I am talking about his testimony on the witness stand. If he found 1.8 parts of nitrogen, and you found .75, as nitrogen how do you account for the difference, or, can you account for the difference?

A. I am not going to account for the difference. I don't understand that that was his analysis.

Mr. Butler: Well, Mr. Smith, aren't you in error in your statement. Didn't Mr. Winton's quantitative determination compare with the volume of the flour, and doesn't Professor Hulett's compare with the volume of the liquid.

Mr. Smith: No, sir, I am not asking about that. I am asking about the flour, now.

The Witness: May I ask what flour it is?

By Mr. Smith:

Q. That which Mr. Winton sent you. Didn't you examine the flour he sent you?

A. I examined Sample I. S. 354-B, and I obtained .75 parts nitrogen, as nitrite, or, about 2.47 NO₂.

Mr. Butler: That was at Princeton?

The Witness: That was at Princeton.

Mr. Butler: Mr. Smith, let me explain that.

Mr. Smith: I wish you would not be so nervous, when I am trying to hurry along with this.

Mr. Butler: Well, I know you have been very expeditious, all the way through, but one specimen, which was taken from the court room only a few minutes ago, long before this flour was made, was sent to him, at Princeton. He is talking of that one, and not this one.

Mr. Smith: So am I.

1013 Mr. Butler: But Mr. Winton did not testify that he examined the flour that he sent to Princeton, at all.

Mr. Smith: Mr. Winton said he sent one sack to Washington.

Mr. Butler: But the flour that he sent to Washington, Mr. Hulett never saw.

Mr. Scarritt: He said there was L.S. in this flour. That is my recollection.

The Court: Well, I never before have understood the rule to be that one witness must account for another witness's evidence.

By Mr. Smith:

Q. Well, now, coming to the flour which was sent you by Professor Winton, and which you examined at Princeton, will you give me the amount of nitrogen which you found in that flour?

A. I found .75 parts per million.

Q. Less than one part per million? A. That flour was—

Q. (Interrupting) All right. You have answered my question. Now, don't get on the side issues. We are trying to hurry this up. Now coming to the flour which you tested here, and, as I understand, that is a part of the flour you obtained, here, in the court room. A. Yes.

Q. Now, how much did that contain, of nitrogen?

A. I did not analyze that flour for nitrogen, or nitrite.

Q. You did not do anything with that?

A. I extracted the liquid from it, condensed it from it and examined that liquid.

Q. And what was the liquid?

A. 2.4 parts NO₂ per million.

By Mr. Butler:

Q. Million of what?

A. Nitrogen peroxide, per million parts of the liquid condensed.

1014 By Mr. Smith:

Q. How much of the flour did you condense, into that liquid?

A. How much of the flour did I condense into the liquid?

Q. How many ounces of flour did you put in?

A. I put in about a pound of flour.

Q. And how did you condense it?

Mr. Butler: He did not condense the flour.

Mr. Smith: Oh, now, my dear sir. I wish you would just let the witness and myself go on, and we will get along fine, and get through in a few minutes.

Mr. Butler: I don't like to see you make a fool of yourself.

Mr. Smith: Now, don't disturb yourself over me. I am responsible for what I do.

Mr. Butler: I am glad of that.

Mr. Smith: Well, there are others.

Q. Please tell me your condensation method, and what you did.

A. I put that flour, about a pound of it, in a flask similar to the glass there, a flask holding something over a quart, or something about that, and there was a side tube from it, and a tube extending out, with a glass cock, and I evacuated that. I removed all the air from the flask, and from the flour, and, after I had done that, I put a cooling tube on the outside of the tube, condensing the liquid from the flour.

Q. And did you get all of the moisture out of the flour into that liquid?

A. I should say distinctly not.

Q. Did you get all of the nitrogen peroxide that was in the flour into that liquid? A. No.

Q. What portion of it did you get?

A. I didn't take it all out, so I cannot say, at all.

Q. What, in your judgment as a chemist, did you get?

Q. Well, I condensed, there, altogether, about 25 cubic
1015 centimeters, I believe.

Q. Now, couldn't you have determined the quantity in the flour, just as well by testing it, as by testing the liquid?

A. Please repeat the question. The amount of what in the flour?

Q. The amount of nitrogen—nitrogen peroxide.

A. I could not determine the amount of nitrogen peroxide that would be in the liquid, by examining the flour, no, sir.

Q. Now, give us, in your judgment, about the amount of nitrogen peroxide that was in that flour, can you?

A. Not from that experiment, no, sir.

Q. Then you are not able to give the jury any impression, at all, as to the amount of nitrogen peroxide that was in the flour that was seized, except as a mere guess?

A. I can give an estimate of it.

Q. Yes, but it would be just guesswork, wouldn't it?

A. It would depend upon what you mean by guesswork.

Q. You have no accurate knowledge?

A. Not the quantitative determination, no, sir.

Q. You never made a test of the flour, to determine the amount in that, and you cannot tell, the amount there was in it; is that right?

A. Not from my own determination, no, sir.

Q. How long did it take you to condense this fluid that you condensed?

A. Well, in that particular experiment, I think that it took—I can't tell you exactly. It took over twelve hours.

Q. Well, tell us, now, why did you do that, instead of testing the flour, to determine the amount in it?

A. For the simple reason, by that method I can say that nitrogen peroxide, and nitrous acid, is in the flour, as such.

Q. Couldn't you tell by any other method? Now are there any other compounds besides nitrites, or nitrous acid, that give the red colors, on the application of the Griess reagent?

A. Not that I know of.

1016 Q. None other?

A. Not that I am acquainted with.

Q. Where you could apply this Griess reagent, and get the same discoloration?

A. My understanding of that is this: The Griess reagent contains two compounds, two organic compounds. When they are in solution, if brought into that solution nitrous acid, you will form a well known compound, or a fairly well known compound, called azo-dye, that is the intense coloring matter. Now, unless you bring nitrous acid in there, you will not get it. You will not get that particular substance, that gives that color.

Q. No other chemical on which it will give that reaction?

A. I think you will not be able to form that azo-dye with any other substance.

Q. I am not asking you about azo-dyes. I am asking you if there is any other chemical, on which you would apply this Griess reagent, that you will get that discoloration.

A. Repeat that question.

(Last question read by the reporter.)

A. Not to my knowledge, no, sir.

Q. Now, when you were baking the bread on which you performed this experiment, what sort of heat was used?

A. Which bread? On that particular bread? I don't know that. I got that from Miss Wessling.

Q. You had nothing to do with the baking of it?

A. I had nothing to do with the baking of it, no, sir.

Q. Do you know anything about the amount of water that was used? A. I do not.

Q. Or whether the water was tested for nitrites, before it was used? A. I had nothing to do with the baking.

Q. And you don't know how long it was allowed to raise, or the process by which it was made?

A. I know nothing about the baking of the bread.

1017 Q. Do you know what is the effect of yeast upon the flour which contains nitrites?

[Q]. The effect of flour on yeast containing nitrites? I have no knowledge, from my own experiments on that subject.

Q. As a chemist, what would you say about the effect of yeast if mixed with bleached flour?

A. Mixed with bleached flour, on the nitrates, or nitrites?

Q. Nitrites.

A. I should say it would depend upon the yeast you used.

Q. Well, if you used the ordinary yeast, such as Fleischmann's yeast.

A. Fleischmann's yeast? Well, Fleischmann's yeast is not a particularly pure yeast, as I understand, and it may, itself, use up the nitrites.

Q. You don't know whether it would or not?

A. What is it?

Q. You don't know whether it would or not?

A. I do not.

Q. Now, this bread that you put into this bottle, and from which you drew the extract. Do you know how long that bread was exposed to the air before it was put in here?

A. I can give you the date which I put it in, and Miss Wessling can give you the date it was baked.

Q. Well, I am asking you if you know?

A. I do not. I suppose about a day.

Q. Exposed to the moisture of the atmosphere for about a day, before it was put in there?

A. I should think it was probably about a day. I cannot say exactly about that.

Q. Now, what would you say, as a chemist, as to whether or not the bread in that tube would or would not absorb a certain amount of nitrites from the air?

A. Well, just what do you mean by "a certain amount of nitrites"?

Q. Well, I think that is plain enough. Read the question, please.

(Last question read by the reporter).

A. I should say, in my opinion, the amount of nitrites absorbed by the bread from the air during that time would not be measurable.

1018 Q. Do you say it would or would not absorb any?

A. It would not be measurable.

Q. That is, it may absorb some, but it would be so small you could not measure it?

A. I say it would not be measurable.

Q. Explain what you mean by that.

A. It would be so small you could not measure it.

Q. You do not say it would not absorb any? There are nitrites in the air, are there not?

A. Depends upon what you mean by the air.

Q. Have I got to explain to you what I mean by air? Generally, it is that which we breathe, here in the West.

A. If you mean gases, excluding liquids and solids, there are no nitrites, I believe, in the air.

Q. Well, I mean that which you are taking into your lungs, as you are there on the witness stand.

A. Well, there might be nitrites in them.

Q. Well, what is your judgment as a chemist, as to whether there are or not?

A. Well, we find nitrites pretty generally in those, and as long as we are taking in those, I think there might be—I think probably there would be nitrites.

Q. Have you made any tests of the air, in places, to determine the presence or absence of nitrites in it? A. Yes, sir.

Q. You have found it in the air, haven't you?

A. I have not.

Q. In the East, or in the West?

A. In Princeton, New Jersey.

Q. Have you ever made any examination of it in Missouri?

A. I have not.

Q. You heard Dr. Marshall's testimony in regard to the amount of nitrites which he found in corn starch, which it took up from the air, did you?

1019 A. Yes, sir.

Mr. Butler: Alkaline corn starch?

Mr. Smith: Yes, alkaline corn starch, such as we eat.

Q. You heard his testimony, about the amount that it took up, did you not? A. Yes.

Q. And that was in the atmosphere? A. Yes, sir.

Q. Then if bread was exposed to the atmosphere in which there were nitrites, would not the bread take up a certain amount of it? A. Not necessarily, no, sir.

Q. Well, I am not talking about [—] it would necessarily do, but what it would actually do.

A. If it was acid, I don't believe it would, enough that you could measure.

Q. Did you ever make any examination of bread that was baked from unbleached flour, and baked in a gas oven?

A. My examinations have been of bread baked in a baker's oven, at Princeton, New Jersey, from unbleached flour. That oven is heated, I believe, by coal. It is a long, baker's oven, and all of my experiments have been made on bread baked in that oven, except this sample, here that Miss Wessling made.

Q. Did you ever make any examination of the bread that was prepared in a kitchen, where they used coal as a fuel?

A. I stated that all of my experiments on bread were made on bread baked in that oven. It is Mr. Dohm's bakery, in Princeton, New Jersey, and it is a bakery.

Q. Do you know what would be the effect upon the atmosphere in a room where soft coal was used as a fuel, as to whether or not it would impart nitrites to the atmosphere?

A. It would probably impart some nitrites to the atmosphere. Well, I will not say nitrites. I would say nitrogen peroxide.

Q. What would be the effect upon the atmosphere in a kitchen, if they used gas jets to furnish the light?

1020 A. Well, you mean from the standpoint of nitrogen peroxide?

Q. Oh, certainly. That is what we are investigating here.

A. It would impart some nitrogen peroxide.

Q. And if bread were made in that kitchen, would it take up some of the nitrogen peroxide thus imparted to the air?

A. Not necessarily, no.

Q. I am not talking about the necessarily part of it; I want the actual facts. It may not be necessary for it to do that, but I want to know if it would.

A. I could not tell that, unless I had some information about the bread.

Q. All right. If you don't know, that settles it. Now, in the experiments which you made in your laboratory at Princeton, you bleached some of the flour yourself, did you?

A. Yes, sir.

Q. Now, I wish you would give me the degree of concentration, or the relative proportion between the nitrogen peroxide, and the air that you used, in your bleaching process.

A. I used a two liter flask, and I took about 500 grams of the air—

Q. (Interrupting) 500 grams of air?

A. 500 grams of flour, and I introduced nitric oxide, NO, one cubic centimeter at a time, and as soon as it came into the flask, it formed, at once, NO₂, and then, as soon as it was in there, I shook the flour, shook it vigorously.

Q. Well now, you will pardon me if I interrupt you. I don't understand anything about what that means. You testified, that, out here at the mill Saturday, you found the air, there, that was performing the bleaching, there was 300 parts of nitrogen peroxide to a millionth part of air, did you not? A. Yes, sir.

Q. Now, what I want to know is, in the bleaching you did, how many parts of nitrogen peroxide did you have, as compared to the air?

1021 A. Well, I will have to calculate it for you. I introduced a cubic centimeter at a time, that would be approximately 1.8 milligrams of nitrogen peroxide, and there was an air space there, of something like a liter and a half, which would be nearly two grams of air. So, there would be

about 1.8 in two grams. Well, we may say two milligrams in two grams, so, that would be one in one thousand.

Q. You had one in one thousand? That was your dilution of the atmosphere to which you subjected it?

A. It was something less than that. I have given you the maximum.

Q. And you kept the flours subjected to that, what length of time?

A. Well, as soon as you put that in there, it begins to be absorbed by the flour, and then the concentration decreases; so, it is impossible to say.

Q. Well, that isn't my question, at all. I am sorry that I cannot make myself understood. My question was, how long did you have that flour subjected to this?

Q. Why, I will have to give you an estimate. Probably a hundredth part of a second, to that particular concentration.

Q. Did you have this in a closed receptacle?

A. Yes, sir.

Q. How long did you keep it in the receptacle?

A. Until it was all absorbed.

Q. My question was how long you kept it there, not what was the result. Did you keep it there a minute, or an hour?

A. I don't know. I will have to estimate it; probably a minute or two.

Q. One or two minutes? And what was the result on the flour? A. It bleached; it was whitened.

Q. Then, after that was done, did you immediately release it from the receptacle, and take it out?

1022 A. I added another cubic centimeter, and shook it again.

Q. And how long did you keep it exposed to that?

A. About the same length of time; about a minute or two.

Q. And how often did you repeat that?

A. Until I added the desired amount of nitrogen peroxide.

Q. My question was, how long you kept it exposed to that.

A. Well, that depends upon the amount of flour I bleached; there was a minute of shaking, between each addition.

Q. Well, I will have to ask again: How long did you continue that?

A. It depended upon the amount I bleached. This particular flour, for instance, the flour I bleached with 18.6 per million it would have been there about—I had 500 grams. I suppose about 5 times I added NO , and that would have been something like ten minutes—ten or twelve minutes, might have been fifteen; that is only a rough estimate. I can't give the exact figures.

Q. So, you kept adding more of the nitrogen peroxide, from time to time, and kept it there, finally, ten or fifteen minutes.

A. Well, that would indicate that I was increasing the concentration. I must explain that, as soon as I added it, it is taken up immediately by the flour, and so, here, we have a concentration, when I added it, the first fraction of a second I had concentration, I will say, one in one-thousand, but, in the next fraction of a second, it is less than that, and it runs down to practically zero, and then I bring it up again.

Q. You kept adding more and more of it?

A. Yes, sir.

Q. And kept the flour in that closed receptacle?

A. Yes, sir.

Q. And kept it there how many minutes?

A. Why, I should say about ten or fifteen minutes. I can't give the exact time. I shook it for a couple of minutes between each addition.

Q. Did the flour continue to change color all the time?
1023 A. Well, I didn't examine it between each addition.

Q. Isn't it a fact that the color of the flour disappeared after the addition of the first cubic centimeter?

A. I couldn't tell that, because I didn't examine it, until after I had finished the bleaching.

Q. Then, did you examine it to find the amount of nitrogen peroxide you had added? A. Yes.

Q. And how much had you added?

A. I think that I did. I will have to be sure about that.

Q. Yes. Let us be sure about that.

A. No, I did not analyze that or put that down. I did not make the ordinary test on that flour, for that. The examination that I made of it was indicated here (referring to chart). That is to say, I put it in the vacuum—

Q. (Interrupting) Why is it, that, in none of these examinations, you have never examined flour, to find out what it contained?

A. That was not essential for this method. It would give me no information, and this method gives the information that you cannot get by such an analysis.

Q. Examining flour to ascertain the amount of nitrogen peroxide which is contained, you think gives us no information?

A. It does not give the information that I got in this experiment.

Q. Well, is that a safe and reliable test to make, as to examine the flour, to see how much it contains?

A. If you suspect that a certain thing is in the flour, and if you detect it and get it out, and get your hands on it, it is a pretty safe experiment.

Q. Well, why didn't you examine any flour to see how much nitrogen it contained?

A. I did examine, perhaps, some flours. That was not important.

Q. The amount of nitrogen in the flour was not important?

A. The amount of nitrogen peroxide used in bleaching the flour was important.

Q. But the same amount that is retained in the flour, you did not deem of any importance, or of enough importance for you to ascertain how much it retained?

A. I did not care for that. It has been done many times. There was no point to it for my work, and this is the result I was after.

Q. The only test which you made to determine the amount of nitrogen in flour was, when you got it in some concentrated form?

A. I don't know that I just understand what you mean, "in some concentrated form".

Q. Well, you never took any bread and examined it, by itself, but you first got the concentrated form, and then examined that, didn't you?

A. I think I did examine the bread, in one case, yes. The bread I got from the Alsop flour. I examined it, and got about one-third of the amount of nitrogen in it. It had nitrites in it. That particular flour I examined. It is the one that Mr. Winton shipped me.

Q. That is what I tried to inquire about, just as my friend here, got so obstreperous. Now, that was some of the flour that Winton sent you?

A. It was, yes, sir.

Q. When was that sent you?

A. It was sent me January 10, 1910, I believe. I will say that is the time I received it.

Q. And what did the flour contain? Did you examine it?

A. It contained .75 parts nitrogen, as nitrites. The flour was I S 534-B.

Q. And then you baked some of it?

A. Some of that flour was baked. I did not bake it. Mr. Doan baked it, but I was there and observed it.

Q. How much did it contain, afterward?

A. .3 parts.

1025 Q. Now, how much is the largest amount of nitrogen which you ever have been able to find in any bread that you have examined.

Mr. Butler: You mean nitrogen, Mr. Smith?

Mr. Smith: That is what I said.

The Witness: I have never examined bread for nitrogen.

Q. That is the largest amount of nitrites that you have ever found in any bread that you have examined?

A. How examined? By the Griess test?

Q. I don't care how you examined it.

A. Well, I examined this bread from I S 534-B, and I found there were three parts of nitrogen, as nitrites.

Q. Three parts, as nitrites? A. I should say—

Q. (Interrupting) Was that where you examined the bread, just as you got it, or where you had the concentration?

A. No, that is where I shook it up with water.

Q. You got three parts, there, as nitrites?

A. Yes, sir.

Q. For the amount of nitrogen, you would divide that by three and a fraction?

A. Multiply it. No, I got nitrogen, as nitrites. It is 3.3 times that, as nitrous acid.

Q. But, as nitrogen, it would be what?

A. As I have given you, 3.3.

Mr. Butler: You have said 3, and .3, interchangeably, here during the last two or three minutes. What is it?

A. .3.

By Mr. Smith:

Q. That is less than one-third of one per cent? Is that true?

A. One-third of one per cent is .33, yes, sir.

Q. Now, do you know how those biscuits were made, in which you were unable to find any trace of nitrites?

A. They were soda biscuits.

1026 Q. Just as an ordinary housewife makes soda biscuits?

A. A baker made those biscuits. He made some soda biscuits.

Q. And in those, you could not find any nitrites?

A. I found nitrites in those biscuits.

Q. Oh, I understood you to say you could not find them?

A. I could not find nitrites in the liquid I condensed from those biscuits.

Q. In the condensed form, you were not able to find any?

A. In the liquid condensed from those biscuits, I was not.

Q. Did you examine the biscuits, themselves?

A. We did.

Q. And what did you find there? A. I found nitrites.

Q. To what extent, please?

A. I cannot give you the exact figure. It was approximately the amount that there was in the flour.

Q. Did you find a greater per cent of it retained in the biscuits, than you did in the bread?

A. Yes, sir. I found a greater per cent retained in those soda biscuits than we did in the bread.

Q. But when you distilled it, and drew off the fluid, or the liquid, as you have testified, you could not find any, at all?

A. There were no nitrites in the liquid coming from the soda biscuits.

Q. None could be discovered?

A. Well, I got a trace, something like that one that you see there.

Q. Now, have you made any other investigations of other food products to determine the existence of nitrites in them?

A. I have not.

Q. Do you know whether or not you would find them, by the same tests, if there was nitrites there?

A. If there was nitrogen peroxide there, I would find it, by the same tests, yes, sir.

Q. In your studies as a chemist, have you never made any of those examinations? A. No, sir, I have not.

1027 Q. Substantially, your only examinations have been to determine the amount of nitrogen, or of nitrites you would get from bleached flour, or from the bread baked from it, by the distillation process, rather than from the examination of the flour, itself, or the bread, itself?

A. Largely that. I have examined flours and bread. I might say, in addition, that I have examined a great many drinking waters for nitrites.

Q. What did you find in them?

A. I frequently found nitrites, sometimes.

Q. Now, would the amounts that were present in bread, be dependent, at all, in your judgment, upon the heat that was used in baking, whether it was electricity, or gas, or fuel,—coal or wood?

A. Well, I think it would make very little difference.

Q. Well, what do you mean when you say you think it would make very little difference? Do you think it would make some?

A. We had Mr. Doan make some bread from unbleached flour, at the same time he made this bread from this particular sample, and we examined the bread afterwards for nitrites, and we found a suggestion of a trace. So, I conclude from that that the amount of nitrites, or the amount of nitrogen peroxide taken up in ordinary baking, in an ordinary baker's oven, run by coal, is not measureable.

Q. What is the color of iodine?

A. What is the color of iodine? Iodine, as a solid, as it is at ordinary temperatures, is a dark, crystalline body, almost black.

Q. As a liquid, what is it?

A. As a liquid, it is a dark liquid, almost black. It is nearly black.

Q. If you pour that on flour, what would be the color of the flour? If you dropped a little iodine on flour, what would be the color? A. I could not tell you, sir.

Q. Don't you know that it will turn it blue?

A. I have never tried the experiment.

1028 Q. Well, as a chemist, can you tell me what would be the result if you pour a little iodine on flour?

A. Not until you tell me what reaction has taken place.

Q. Well, I can't tell you that, sir.

A. Well, I can't tell you the result.

Q. All I know is, if you pour it on flour, it turns it as blue as indigo.

Mr. Butler: In bleached flour, Mr. Smith.

Mr. Smith: Yes, or unbleached.

Mr. Butler: Corn meal?

Mr. Smith: I never tried it on corn meal.

Q. You don't know what would be the result?

A. No, sir, I don't know what would result.

Q. Now, I want to ask you that question again. I want to know your answer, there on that, whether or not there are any other compounds, to your knowledge, besides nitrites, or nitrous acid, that will give a red color, if the Griess reagent is applied?

A. The nitrous acid is the only substance I know, which will give that particular substance,—that azo-dye, with the Griess reagent.

Q. And you draw the conclusion that this flour contains these, because it gives the red color when the Griess reagent is applied?

A. I do, yes, sir.

Q. If there are other chemicals which would give that, or other compounds which would give that test, then, may not those other compounds be there, rather than what you referred to?

A. Not until it is shown [there] are present.

Q. How is that.

A. Not until it has been shown that they are present.

Q. Well, you have shown that they are present, by this Griess test, haven't you?

A. I have shown that nitrous acid is present.

Q. By this test? A. Yes, sir.

1029 Q. Have you shown that nitrites are present by that test?

A. The Griess reagent is an acid solution, and as soon as you put a nitrite in there, you get a nitrous acid, and it is my opinion that it is the nitrous acid which gives me the reaction.

Q. What would you say about that flour? Is there any nitrogen peroxide in the flour?

A. I say there is nitrogen peroxide there, and nitrous acid.

Q. Any nitrites?

A. Any nitrites? There may be.

Q. Well, I am not after the maybes; I simply want the facts, whether any nitrites are there.

A. Well, I should answer, to that, that there is no direct evidence that there is.

(Recess was then taken for five minutes, after which the cross-examination of the witness Hewlett was resumed, as follows:)

By Mr. Smith:

Q. Professor Hewlett, I think you probably explained it, but I don't think I got it straight in my own mind; from what my associates said, I don't think I did. You tested the biscuits, and you did find traces of nitrites—certain amount of nitrites, in them; am I right?

A. You are talking about the soda biscuit?

Q. Yes, sir.

A. I tested the soda biscuit in two ways; I tested it in the ordinary method of shaking up with water, and then examining the liquid that I got.

Q. Yes.

A. Or extract. In that, I found the reaction for nitrous acid.

Q. To what extent, please.

A. I have not the exact data. It was approximately all the amount that was in the flour. It was less.

Q. Well, that don't give me any figures, at all.

A. Well, you see a pound of flour does not make a pound of biscuit.

1030 Q. I am getting at the figures, so much per million.

A. I have not any parts per million. I have not got it in parts per million, exactly. I did not pay much attention to that experiment, because I found I did not get the—that I did not get any nitrites in the liquid condensed from it, but, as I remember it, the nitrites, or, that is to say, the nitrogen as nitrites, in the biscuit, was approximately what there was in the flour.

Q. Yes, but how much was that?

A. In the flour, there was .75, and there may have been something like .6 in the biscuit. Those are not the exact figures.

Q. In the biscuits? A. Yes, sir.

Q. Now, the distillation was like which one of these exhibits?

A. The liquid condensed from those biscuits, showed possibly a suggestion, depending upon your eye.

Q. Well is that 28 or 29? This one is 28 and this is 29.

A. In order to compare them that close, you must have them together—not one here, and the other in Princeton.

Q. I thought, in your examination, you said it was like one of these.

A. I meant to indicate that it showed a suggestion, as one of those does.

Q. So, in the distillation from the biscuit, when you concentrated it and drew off the liquid, and then examined that, you were only able to get a suspicion of a trace?

A. A suggestion. That might very probably have come from the reagent.

Q. What do you mean by that?

A. Well, the Griess test is not entirely without color—the Griess reagent.

Q. If you would just pour the Griess reagent in water by itself, it would show some color, will it?

A. Show less than it will before you drop it in, because it is diluted. I think the Griess reagent, there, has a slight color to it. It seems to me so.

1031 Q. And that was about the effect that you secured when you drew off the liquid from the biscuits, and concentrated it, and then made your test?

A. My conclusion from that experiment was, that there was no nitrogen peroxide coming from those biscuits by condensation.

Q. And these were the ordinary soda biscuits?

A. Those were the ordinary soda biscuits, yes, sir; my baker made them for me, and I simply took his word for it, that they were soda biscuits.

Q. But, do you give it as your judgment, to this jury that, in the ordinary soda biscuit, made in the usual way, there would not be any nitrites?

A. From that experiment, yes.

Redirect Examination

By Mr. Butler:

Q. You mean by that, that no such nitrites would be pumped out?

A. The result of that experiment, I should say that you would not be able to pump nitrites from a soda biscuit.

Q. Take the same biscuit, and wash it in water, and you would find the nitrites soluble, and get them free?

A. That is what we found, yes.

Q. And the purpose of the two methods is to determine not the quantity, but the character of the chemical reaction that takes place?

A. Whether the nitrogen peroxide is there, as such, or there as nitrous acid.

Q. Now, in your testimony, you have used the word "atmosphere", sometimes, and the word "air", sometimes. Did you use [then] interchangeably? A. No, I did not.

Q. Well, have you heretofore intended to distinguish between one and the other, as you have given your testimony?

A. That is rather difficult to say, because the question
1032 did not distinguish.

Q. Well, what I am trying to get at, is your testimony, as it is upon the record, are we to read it that "atmosphere" and "air" have been used interchangeably?

A. Well, I think probably so, yes, sir.

Q. You do not recall of any instance where you intended to point out and distinguish one of the words from the other?

A. In one of the questions Mr. Smith asked me whether there were nitrites in the air. It was necessary for me to understand then what he meant by the "air", before I could answer that.

Q. Now, I would like to have you distinguish, by taking a piece of chalk and that blackboard, if you can do it better that way, between nitrogen peroxide gas, nitrous acid, nitric acid, and how the two acids are formed from the addition of water to this gas. Write, first, the chemical formula for nitrogen peroxide gas.

A. We have a gas that we call nitrogen peroxide, and it is made up of two chemical parts. One chemical part is nitrogen, and two of oxygen. That is to say, we refer to N, as representing the chemical part. 14 is the atomic weight of nitrogen; and, O, as representing 16 of oxygen. Now, in this we have 14, and in this we find not 16, but 32, so, we simply write NO_2 , and that is represented that way, representing that substance. As a matter of fact, that represents another ultimate particle, and, as a gas, it is not the only possibility sometimes—there is an equilibrium between them; that is to say, it is part that, and part, being N_2O_4 . You have both of those present.

Q. That is what it says in the patent, nitrogen peroxide, NO_3 , and N_2O_4 , depending on temperature. Now, let me go a little slower. N stands for nitrogen?

A. N stands for nitrogen.

Q. O stands for oxygen? A. Yes.

Q. And the chemical value or weight of N is what?

1033 A. N is 14.

Q. Oxygen?

A. 16, and, two would be 32. So, the weight, of your molecule as we call it, or ultimate particle, is then 46, and $14/46$ of it will give you the percentage of nitrogen, and 32.46 of it will give you the percentage of oxygen. You can work it out in percentages, if you like.

Q. Well, I would like to have you write down on the board, NO_2 , plus H_2O . H_2O is water, and shows how it breaks up to form HNO_2 , to HNO_3 , and shows from it breaks up to form HNO_2 , to HNO_3 , the nitrous acid, and the nitric acid.

A. Well, there, again, it depends. Exactly what happens, depends upon concentration. It would depend very largely on concentration. I will take, for instance, the result that we might expect without any very dilute or very great concentration. We might then expect to find NO_2 , dissolving in water, and, combining with it, and splitting up into nitric acid and nitrous acid.

Q. Now, let us take those things one at a time. NO_2 is the yellow gas that is formed by the flaming arc of the Alsop process? A. It is, yes.

Q. H_2O is water? A. H_2O is water.

Q. And in the flour there is 10 per cent of it, is water?

A. 10 per cent of it is water. Some of it, at least, is on the surface of the grains.

Q. So, when the NO_2 comes in contact with the flour, or with anything else containing water, a chemical change takes the place of the NO_2 plus water?

A. Of course, we have a large excess of water, and I might put "X" water, and then, over here, "X" water, because we have these things in solution.

Q. Now, let us suppose that we have some sodium in the flour, the same as you have in soda biscuits. Now, what is the chemical sign for sodium?

1034 A. Na is the symbol for that. This represents 23 parts of sodium.

Q. Now, combining your sodium with NO_2 , what do you have?

A. We get—you would not combine it directly. It would give you something in the form of a salt. It would give you NaNO_2 . In other words, the sodium takes the place of the hydrogen.

Q. That is the nitrite? A. Yes, sir.

Q. Now, just assume there is a lot of that in the biscuits. If you put it in this Exhibit 30, and pump it all out, would that give up the NO_2 , and give us all HNO_2 , or nitrous acid?

A. It would not, if there was enough base there to combine with the acid.

Q. That is what I mean. Suppose the chemical union is complete—that is, all of the NO_2 goes from nitrous acid in

to the salt of sodium, we will say. Could it be recovered by this pumping method, which you have described?

A. No. You would not be able to pump out the nitrogen peroxide.

Q. So, the failure to recover any from the biscuits, proves that the nitrous acid had combined, chemically?

A. That is the conclusion that I drew from that experiment.

Mr. Scarritt: Nitrogen what?

Mr. Butler: Nitrites of the various bases, such as sodium, or potassium, or the vegetable bases that are in the flour. Am I right?

The Witness: I should say sodium nitrite, sodium nitrate.

By Mr. Butler:

Q. There might be other bases there, perhaps, in the organic part of the flour, to make nitrites, but, when you put the pump onto the flour, before the sodium has been added to make biscuits, you pumped out the NO_2 gas in the water, or the HNO_2 , in solution, in water?

A. That is correct.

1035 Q. So that your two methods show that in the flour the HNO_2 is not all combined?

A. That is correct.

Q. It is there as nitrous acid?

A. It is there as nitrous acid.

Q. But, in the biscuit, it is combined, but in the bread, again, it is not all combined? A. That is correct.

Q. So, the purpose of your investigation by the pump was not to make a quantitative analysis, to find out how much nitrites were in the flour or in the bread, but to find the form that it was there?

A. To find out whether it was there as nitrous acid, or nitrogen peroxide.

Q. As nitrites?

A. Whether it was there chemically combined, or as a solution.

Q. Now, when you take the biscuits, made by the ordinary method, soda biscuits, the pump gives up no liquid which yields the acid, but, by washing that in water, the nitrites dissolve, and you find the nitrites there?

A. Yes, sir, that is correct.

Q. Now, the first question Mr. Smith asked you was, whether you had isolated any NO_2 gas, or HNO_2 , and you said you could not answer that question, as asked, but you wanted to explain it. Now, you can make any explanation you desire.

A. Assuming that the nitrogen peroxide, combining with water, forms nitric and nitrous acids—and that is the conclusion from experiments,—assuming that we get that, we have, in there, nitrous acid. Then, my point is this: Nitrous acid is a liquid. It is a solution of the compound, represented by the formula HNO_2 , in water, and, according to my knowledge, it does not exist as anything else than a liquid. It does not exist as a solid, or as a gas, or as a vapor. You cannot have it, when you take all your water away. In other words, you would simply have a solution, but you may have it of varying concentrations.

1036 Q. In other words, HNO_2 does not exist, except in combination?

A. That is the conclusion, from the evidence we have upon that subject.

Q. The NO_2 does?

A. The NO_2 certainly exists as such.

Q. And the nitric acid—

A. (interrupting) The NO_2 certainly exists as such, without any other substance present.

Q. And the nitric acid, of course, is a very common article of commerce? A. Yes.

Q. Now, with reference to the degree, since you apply the Griess test to the extract of the bread,—that is entirely different from washing the bread with water, and filtering the solution, and testing it?

A. Yes, sir.

Q. Now, since you added the Griess test to Exhibit 30, you find there is a practical correspondence between that and the fluid in Exhibit 21, do you not?

A. As far as my eyes go, from this distance, I see no difference there; one is a little smaller than the other, and, of course, the color of a liquid depends upon the depth through which you look.

Q. Now, what I am trying to get at, is this: You say it is not all exhausted from the bread yet?

A. I should say not.

Q. Now, I want to get at the degree of strength of the solution which comes out as a vapor, and, because the surface of this glass tube is cold, it condenses, as frost, like moisture on a window pane? A. Yes.

Q. I want to find out whether or not the solution that first comes, is the same thing as that which comes a little later, and a little later?

A. In one of the experiments, at Princeton, we had an accident after it had gone along a while, a certain amount of the liquid was removed, about one-third of the total amount removed. That was preserved by itself, and, later, another accident occurred. So, we got a second

sample of the liquid from this same flour, and then we got, finally, a third. Well, the first showed the less nitrous acid. The less concentration of nitrous acid. That is to say, it seemed, from that experiment, that experiment showed that the nearer we approach complete removal of the liquid, the greater the HNO_2 concentrated. In other words, it would have more nitrous acid than the first portions removed, and that is in accordance with what we might expect, from other things that are known, from a scientific standpoint, about surface absorption, and the film of moisture, and so on.

Q. Now, from the examination that you made of this flour, bleached, which was furnished you from one of these exhibits by Mr. Winton, by this pumping method, you say that there is still in that flour which was bleached, some 60 or 70 days ago, NO_2 , or HNO_2 , as such, which has not yet fastened itself in chemical combination upon the ingredients of that flour?

A. That is the conclusion, from that experiment, yes, sir.

Q. You spoke of a trace of nitrite, and a suggestion of a trace of nitrite reaction material. I would like to have the meaning of that expression stated upon the record.

A. Well, whenever you have these two compounds in solution, in an acid solution, particularly acetic acid solution, the reagent,—these two organic compounds, and you bring into it nitrous acid, or anything that will make nitrous acid, you would form this azo-dye and give the intense coloring power. Now, it is possible to detect one part of nitrogen, as nitrites, in one-thousand million parts, and our reagent, it is pretty hard to keep them free from that, absolutely,—nothing absolute, in science, as a matter of fact,—and the glassware, and one thing and another, of that kind, so, it is very possible for you to get something that will mean one part in one thousand million. If that disturbs you, it is unfortunate.

1038 Q. Well, what is a trace?

A. A trace means something like that, which could possibly come from the reagent, or the process.

Mr. Scarritt: And not from the material, itself?

The Witness: And not come from the material itself.

By Mr. Butler:

Q. Now, for example, you said, a while ago, in the cross-examination of Mr. Smith, that this Griess test, which is marked Government's Exhibit 3, here, seemed to you to be a little off.

A. It seemed to me.

Q. Would you say that that is an illustration of what is meant by a trace?

A. Yes. Now, there may be a question about that, that there is a red color on that. Now, there is a red color on the label, there, and if you had that in your line of sight, you might observe a little pink, in that solution. Turning it, again, this way, it may again be questionable. That is a matter, perhaps, of judgment on one's part.

Q. Such a reagent is apt to contaminate about the laboratories, where there would be fumes of nitrous acid in and out, as, for example, if this was still giving off some fumes?

A. Yes, very readily.

Q. And, if the Griess test was exposed to that, it might be contaminated some more?

A. Yes, sir, that is correct.

Mr. Butler: That is all.

Mr. Smith: That is all.

The Court: Just a moment. Now, one of the jurors made a suggestion to me that this Griess test be applied to the flour, bleached and unbleached. Now, if there is no objection, that may be done, but, further than that, I don't think it desirable or advisable to have these experiments made here in the court room, for the reason most obvious to lawyers, with 1039 which jurors are very likely to be led astray, namely, it is impossible to put it into a record for the purposes of review, by other proceedings, later on, if such proceedings should be desired. Not only that, but, I want to say, once and for all, in reference to this, if one side suggests to the other side that these experiments be made, that coerces the other side to agree that it shall be done; otherwise, the jurors get the false impression about the situation. So, I do not think that it is desirable. I am not criticizing anybody. That has not been done, but I am afraid it will lead on to that. One side proposes a test be made, and the other side will be compelled, as a matter of course, to agree that it shall be done, or else be put in the light, before the jury, of being afraid of it. So, that won't do. So, let us not have any co-contracts, or horse-trades, or anything else of that kind, in this case, here. Now, if you have got some bleached and unbleached flour—

Mr. Butler: I have sent for some bleached and unbleached flour, and as soon as I get it, I will have Professor Hewlett make the demonstration.

George Freeman, being recalled, was examined, and testified further as follows:

Direct Examination

By Mr. Smith:

Q. I just wanted to ask you, Mr. Freeman, to give me
1040 the day and time when you were working at Morton's.

A. It will be simply from memory.

Q. Yes. A. About four and a half years ago.

The Court: Make it as definite as you can.

The Witness: Between four and four and a half years ago.

The Court: Well, state when that was. Subtract that from 1910.

The Witness: It was the latter part of 1906, or the first part of 1907.

By Mr. Smith:

Q. You worked there about six months?

A. About six months.

Mr. Smith: That is all I wanted to get.

Witness Excused.

Hannah L. Wessling, called as a witness on behalf of the Government, being first duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Your name is Hannah L. Wessling? A. Yes.

Q. Where do you live, Miss Wessling? A. Chicago.

Q. You are employed by the Government in its food laboratory at Chicago?

1041 A. Yes, sir, in the Food Inspection Laboratory, at Chicago.

Q. What education have you had, if any, generally, and technically?

A. Well, I studied chemistry at the University of Cincinnati, taking the degree of Bachelor of Science, and a year later, the degree of Bachelor of Science in chemistry. Following my graduation, I taught chemistry in the Woman's Medical College at Cincinnati, until that college was absorbed by one of the medical schools for men. Following that, I was the teacher of chemistry in the High School at Newport, Kentucky, and, from there, I went up to Chicago to accept my present position with the Government, the Food Laboratory there.

Q. You have been here in Kansas City since about the date of the commencement of this lawsuit?

A. Yes, sir, since the morning of the 31st of May.

(At this point the witness was temporarily excused, and the test mentioned by the Court was then conducted by the witness Hewlett.)

G. A. Hulett, being recalled, was examined by Mr. Butler, and testified as follows:

By Mr. Butler:

Q. I show you the beakers, marked 8 and 12, respectively, in each of which there is some flour, and upon each of which you dropped four drops of the Griess test, and ask you whether the reaction for the nitrite reacting material is indicated in the beaker marked 8?

A. In the beaker marked 8, I got a very strong reaction for nitrites, very marked.

Q. And how, in the beaker marked 12?

A. Some eyes might claim that there was a suggestion
1042 of pink there. It might quite well be from the effect of a liquid on a finely divided substance. If you would put a little moisture on a piece of cloth, it will look dark.

Mr. Scarritt: We object to arguing it.

Mr. Smith: It speaks for itself.

The Witness: I get nothing there that will suggest anything except the merest possible trace of nitrogen peroxide.

Cross-Examination

By Mr. Smith:

Q. Doctor, is it the flour that changes color, or the liquid that you put on there?

A. That color is due to an azo-dye.

Q. Now, that isn't my question, at all. Is it the flour that changes color, or is it the liquid?

A. The color is due to a distinct combination.

Mr. Smith: Now, I move to strike it out, your Honor, my question is plain.

Q. Is it the liquid that changes color, or is it the flour?

A. Well, I should say, perhaps, it was either of them. It is this thing that is formed in the presence of an azo-dye.

Q. Oh, well, my question was, which one changes color there, the liquid or the flour. I am not talking about azo-dyes, and I think you ought to answer that question. Does the liquid, the Griess reagent that you put on the flour—is that what turned the color, or is it the flour which turns color?

A. The two coming together, form this substance that gives the pink effect.

Q. Has any of the flour that was in there changed color?

A. Has any of the flour changed color? What do you mean by the flour changing color?

1043 Q. I can't make myself understood any plainer.

By Mr. Butler:

Q. What is the chemical reaction that takes place, that gives the pink color, in the beaker, marked 8?

A. We have two chemical substances, which we have in the solution known as the Griess reagent. When we bring in contact with that solution anything that contains nitrous acid, or will form nitrous acid, we get definite compound there that gives us this color.

Witness Excused:

Hannah L. Wessling, recalled, was examined further, and testified as follows:

Direct Examination, (Continued)

By Mr. Butler:

Q. Have you had some experience in bread making, experimental, and otherwise? A. I have.

Q. During what period of time?

A. I had experience at home, before I went to Chicago, in the domestic line, and; since I have been in Chicago, the greater part of my time has been spent on the work with flour, which brought up, of course, baking, as well.

Q. In both the bleached and unbleached flour?

A. On both bleached and unbleached, yes, sir.

Q. Both the flours bleached in the ordinary course of bleaching, at mills, and the flour that was bleached in the laboratory, for experimental purposes?

A. Yes, sir, wheat flours, bleached at the laboratory, 1044 and wheat flours bleached at the mills.

Q. Since you came here, have you made any baking of bread, from any of the flour that was seized in this case?

A. I have.

Q. Where did you get that flour?

A. There was one bag, the remnants of the bag had been sent to the Chicago laboratory, was sent down here, and I made one baking, from a portion of that.

Q. That is, the bag brought here by Professor Winton?

A. Yes, sir.

Q. And the one that has been brought to the court room, and introduced in evidence? A. Yes.

Q. That is, Exhibit 8. Did you bake some of the bread from that? A. I did.

Q. Is that the same bread referred to by Dr. Hewlett, in his testimony?

A. Yes, sir, it was part of that bread, that Dr. Hewlett examined for the nitrites.

Q. In this pump? A. Yes, sir.

Q. Now, you may tell the court and jury how you made that bread.

A. That particular bread that was used by Dr. Hewlett, was made according to the Koellner method, or the straight dough process. The amount of flour was 340 grams, or about 12 ounces, and the yeast—shall I give the quantities?

Q. Yes.

A. There were 10 grams of yeast used to that amount of flour, 12 grams sugar, and five grams of salt. The amount of water we determined beforehand, by the absorption test, and the ingredients were first mixed—that is, the ingredients were first mixed for a definite length of time, ten minutes later, the one-third of the flour which had been reserved and made warm, was added, and the mixture was kneaded for ten 1045 minutes. It was then molded, and placed in the tin, and set in the rising closet, and raised to a definite loaf determined by a little gauge—tin guage, that is placed over the pan, and at the time it reached the gauge, it was placed in the oven, and baked until it lost exactly thirty grams of weight. I used the flour that was seized. That was all you care to know about this?

Q. Yes. That was some of this very same bread that was used by Dr. Hewlitt?

A. Yes, sir, it was a part of that loaf, that he used.

Q. That he extracted the nitrous acid from?

A. Yes, sir.

Q. Did you make any other bakings from any of the flour that was seized, since you came here?

A. Yes, sir, there was a bag of the flour brought down, I think from Castle, Missouri, later, and I have made baking tests on that.

Q. That was one of two bags brought down by Mr. Winslow? A. By Mr. Winslow, yes, sir.

Q. And the flour that was obtained from that quantity, was that the flour from the bag that is here in the court room, and which is marked Exhibit 13, or, was it from the other bag which is not here in the court room, or do you know?

A. It was made from Exhibit 13.

Q. No. 13?

A. From that particular bag.

Q. Now, did you make any baking from this "Purity" flour, unbleached flour, which Mr. Winslow brought here from Castle, and which Mr. Leflang says is the same kind of flour that the seized flour was, except that the seized was bleached, and this is not bleached?

A. Yes, sir, I also baked that.

Q. Have you preserved specimens of these two breads?

A. Yes, I have some specimens.

Q. And did you make any bread from any unbleached
1046 flour that has not been exhibited here in the court room?

A. Yes. We took some flour that was brought from the Kelly mill, a mill that I understand doesn't bleach flour. I also baked bread from that.

Q. And any from the "Aristos"?

A. I baked from the "Aristos" flour.

Q. What is the name of the Kelly flour?

A. I don't know.

Q. Well, we will call it "Kelly", then.

A. I think they call it "Kelly's Best", but I don't know of any particular brand.

Q. Now, were these breads from the four different flours made in the same way, so as to furnish a basis of comparison?

A. Identically the same.

Q. That is, bread from Exhibit 8, bread from Exhibit 12, bread from "Kelly's Best", and bread from "Aristos"?

A. Yes, sir.

Q. Now, have you those in court?

A. I haven't all of those, there.

Q. Which ones have you?

A. I have three. I have the one from the seizure, one from the "Purity", and one from the "Kelly".

(Handing bottles to the witness.)

Q. Pick out of those little bottles the bottle containing the bread made from Exhibit 8, if you can.

A. No, I haven't any of Exhibit 8 here.

Q. Then have you any of the bread of the seized flour?

A. Exhibit 13, yes, sir.

Q. Exhibit 13? A. Yes.

Q. And Exhibit 8? Now, let us have the one from Exhibit
13. That bleached, seized flour?

A. There are two, one made by this Koellner method that I have just described, and another according to the domestic method of making bread in the household.

Mr. Butler: We will have them marked as exhibits.

1047 (Samples referred to marked by the reporter as Government's Exhibits 30 and 31.)

Q. Exhibits 30 and 31 are both made from flour in Exhibit
13? A. Yes, sir.

Q. And one is made by the Koellner method, and the other is made by the domestic method? A. Yes, sir.

Q. Which is made by the Koellner method?

A. Exhibit 31 is made by the Koellner method.

Q. We will put a "K" on that one, then, to stand for Koellner. A. 30, that is made by the domestic method.

Q. And we will put a "D" on that, to stand for domestic. Now, I observe that there is a strip of pink color—reddish, pink color, in the center of each one of those pieces of bread. How did that come there?

A. I put some of the Griess reagent on the bread, and it brought out that color.

Mr. Butler: Exhibits 30 and 31 are offered in evidence.

Q. Now, have you some bread made from an unbleached flour?

A. I have some made from that "Purity" flour, that was to replace it.

Q. By the Koellner method, and by the domestic method?

A. And the domestic also, from Exhibit 12.

Q. These are both from the same bag—"Purity"?

A. Same bag.

Mr. Butler: We will have these marked.

(Exhibits referred to are marked by the reporter Government's Exhibits Nos. 32 and 33.)

Q. Which is the Koellner, and which is the domestic method? A. The Koellner is No. 33.

Q. And 32 is the domestic method? A. Yes, sir.

Mr. Butler: I will mark them similarly, "K", and "D", so we will not have to refer back.

1048 Q. Did you apply the Griess test to the bread, Exhibit 32 and Exhibit 33? A. Exactly the same.

Q. The same way, and to the same extent?

A. The same way, and to the same extent, exactly.

Q. Did you get any nitrite reacting material test?

A. None at all.

Mr. Butler: The exhibits are offered in evidence.

Q. Now, the baking was the same, in each instance—that is, the domestic method was applied to one sample that you have indicated, of the bleached flour, and to one of the unbleached flour, here in evidence? A. Yes, sir.

Q. And the Koellner method, to one of each? A. Yes.

Q. And the Griess test was applied, after baking, in each instance? A. After baking.

Q. And applied by the same method? A. The very same.

Q. Now, have you made any bakings from bleached flour and unbleached flour, for the purpose of comparison, mixing into the dough of each, some of the Griess test, to see how the test would affect the two kinds of flour, bleached and unbleached, and to compare the product?

A. Yes, sir, I have done that.

Q. Now, what flour did you take for the bleached flour, for that?

A. I took some of this same seizure, Exhibit 13,

Q. Now, when did you apply the Griess test, to the bread in Exhibits 30 and 31,—before baking or after baking?

A. After baking.

Q. And when did you apply the tests in Exhibits 32 and 33?

A. After baking, at the same time.

Q. At the same time? A. Yes, sir.

1049 Q. And in the same quantities, and so forth?

A. Yes, sir.

Q. Now, you say you have made some bakings, by applying the test to the flour before baking?

A. Yes, sir. It was not bread however, raised with yeast.

Q. It was what? A. It was biscuits.

Q. You made biscuits? A. Yes, sir.

Q. Made them both in the same way?

A. Made both exactly in the same way.

Q. Now, you got the bleached flour from Exhibit 13?

A. Yes, sir.

Q. And the unbleached?

A. The unbleached was "Aristos". It is not here in court, I believe—an unbleached flour.

Q. Did you test it, before you baked it? Did you test it with the Griess test, for nitrites?

A. Yes, sir.

Q. And the "Aristos" did not disclose nitrites?

A. It did not show any.

Q. Now, describe to the jury how you made these Griess biscuits, we will call them.

A. I made them as well as I know how to make baking powder biscuits, instead of using water or milk, as would be used in the case of baking powder biscuits, I used the Griess reagent, using that as the liquid with which to mix them up, after the salt, baking powder, and the shortening had been added to the flour. In one case, I used the reagent of the regular strength, and, in another case, just for comparison, I diluted that reagent so that I had one part reagent with four of water,—one to five.

Q. Well, I know, but what I wanted to get at is, was the bleached flour treated the same way as the unbleached flour?

A. It took a portion of the bleached flour, and a similar portion, exactly the same weight, in each case, of flour.

Q. (Handing the witness a biscuit) That is the undiluted? A. Yes.

Q. (Handing the witness another biscuit) And this is the other?

A. Yes, but this is the same flour. Now, this is the bleached flour. I have some unbleached, made in the same way.

Q. But I want to get the bleached flour you treated with the undiluted Griess, compared with the unbleached, that you treated with the undiluted Griess. Is that it?

A. No, this is the diluted one.

Q. Well, come down and pick them out.

(Witness does as requested.)

Mr. Butler: Now, we will have them marked.

(The exhibits referred to are now marked by the reporter Government's Exhibits Nos. 34 and 35.)

(Exhibits 34 and 35 are shown to the witness.)

Q. Now, you may tell us out of what flour Exhibit 34 was made, and how you made it, in detail?

A. Exhibit 34 was made with the seizure flour.

Q. Exhibit 13?

A. Exhibit 13. To 125 grams of flour, I added three grams of salt, four grams of baking powder, and 20 grams of lard, and used 72 c. c. of the straight reagent, Griess reagent, to mix them up, and I divided that amount of dough into three biscuits, or three portions—I beg your pardon, now, I did not make three biscuits of all of that. I took one third of that mixture, after I had mixed the baking powder, salt and lard with the flour, I took exactly one-third of that mixture, and doughed that up.

Mr. Scarritt: What do you mean by the mixture—the raw dough?

A. Yes. It was not a dough, yet. It was almost a dry mixture, of simply the flour, with the salt and baking powder, and the lard worked into it. It was from this that I took exactly one-third of the weight, and that I mixed with 23 c. c. of the Griess reagent.

Mr. Scarritt: You mean 23, instead of 72?

1051 A. Yes, sir. Just enough to make it of the proper consistency to make into a biscuit.

Mr. Scarritt: You put 23 into that one biscuit?

A. Yes, sir. Just enough to dough it up.

By Mr. Butler:

Q. Well, now, go on.

A. Then I baked it, and the result can be shown right there (breaking the biscuit open), showing that the color, which of course came out as soon as the reagent was mixed with the flour—the effect was not destroyed by the baking. If anything, it was intensified.

Q. Now, how did you make Exhibit 35? Was that made at the same time as 34?

A. Made immediately before this. I did not make them at the same time, because I baked each by itself.

Q. 34 was made the same day as 35, and immediately before? A. Yes, sir.

Q. Now, how did you make 35?

A. I used 125 grams of flour, of the "Aristos".

Mr. Smith: I object to this, because it is a comparison between different flours. One is a Lexington flour, and the other is a Kansas City flour. That is not a fair comparison to make.

By Mr. Butler:

Q. You tested this "Aristos" for nitrite reacting material, and did not get it? A. Yes, sir.

Q. It was not bleached? A. No, sir.

Mr. Butler: We simply wanted to bring out the difference between—

Mr. Smith: All right, then, you should have used Lexington bleached, and Lexington unbleached. That is not fair.

1052 Mr. Butler: We will do that, if you want us to.

Mr. Smith: Well, I don't care whether you do or not, but I think that that is not fair, and I object to it as being incompetent, irrelevant and immaterial.

The Court: Objection overruled.

Mr. Butler: (Producing a bag of flour) Now, let us have this bag marked.

(The bag of flour was then marked by the reporter Government's Exhibit No. 36.)

The Court: You say this flour you tested, before you baked it into bread?

A. Yes, sir, and it gave no reaction for nitrites.

Q. (Showing witness Government's Exhibit No. 36) Was it some of this sack of flour, marked Exhibit 36, that you used to bake the biscuits, Exhibit 35? A. Yes, sir.

Q. That is branded "Aristos, the best, Kansas City, U. S. A., registered, U. S. Patent Office.", I guess. I am not sure I have read that right. That is the brand?

A. Some of that flour was used to make this biscuit.

Q. Now, how did you make Exhibit 35, as compared with 34?

A. Exactly the same way, using exactly the same ingredients.

Q. The same quantities of each? A. Each.

Q. Show the jury the interior of that biscuit.

(Witness does as requested.)

Q. Are Exhibits 34 and 35 identically the same in all respects except in the flour used?

A. Exactly the same, with the exception of the flour.

Q. Neither of these biscuits was intended, of course, for use, or edible purposes? A. Oh, no.

Q. Merely made for the purpose of effecting a comparison between the bleached and unbleached flour, being treated alike, using this reagent.

1053 The Court: This Griess test?

The Witness: It is simply to see the effect the baking might have on it, whether it would affect the color or not.

Q. Is there an odor to this Griess test?

A. A most decided and unpleasant odor.

Q. It has a kind of acetic acid odor, hasn't it?

Q. Was the odor derived from those biscuits similar to the odor from the Griess test? A. Yes, sir.

Q. Now, did you make any other bakings of biscuits, for the purpose of comparing the effect of the Griess test, for dilute?

A. Yes, sir. Diluted the reagent.

Q. And what flours were used? A. The same flours.

Q. Exhibit 13, the bleached flour which has been seized, and Exhibit 36, "Aristos", which you tested for nitrites, and did not find them? A. Yes, sir.

Q. Now, can you pick out a pair of those, for comparison?

(Witness does as requested.)

A. This is the biscuit that was made of the bleached flour, Exhibit 13, with the diluted reagent. It still shows a decided pink color.

(Breaking open the biscuit.)

Q. All right. You have gone a little fast for me. I intended to mark these as exhibits in the case.

(The exhibits referred to were then marked by the reporter Government's Exhibits Nos. 37 and 38.)

Q. Now, Exhibit 37 was made from what flour?

A. Exhibit 13.

Q. Some of the seized flour that was bleached, and Exhibit 38 was made from what? A. From Exhibit 36.

1054 Q. Were those two biscuits made alike?

A. Made exactly alike, with the exception of the flour.

Q. With the exception of the flour? Did you use the Griess test in the dough of the flour of each, before baking?

A. I mixed some of the Griess reagent with some water. I used one part of the reagent to four parts of water, and used just enough to dough up what I had, using the same amount of liquid in each instance.

Q. And were those biscuits made the same as were the biscuits, 34 and 35, except that in 34 and 35 you used the Griess test without dilution, and in 37 and 38, you used it diluted, four parts of water to one of Griess, or, three parts of water to one?

A. Four parts to one of the Griess reagent.

Q. Four parts of water to one of the Griess reagent, making it one-fifth strength? A. Yes, sir.

Mr. Butler: Exhibits 37 and 38 are offered in evidence.

Mr. Smith: No objection.

By Mr. Butler:

Q. (Showing witness Government's Exhibits Nos. 39 and 40) I show you two biscuits, marked Exhibit 39 and Exhibit 40, respectively. From what flour were those biscuits made?

A. From Exhibit 13.

The Court: Both of them?

A. Both made from the same flour.

By Mr. Butler:

Q. And what was the date of baking Exhibit 39?

A. Exhibit 39 was baked on the 11th of June, and Exhibit 40 was baked on the 10th of June.

Q. Was any of the Griess reagent used in either?

A. None at all. Simply water.

Mr. Scarritt: Simply water, you say?

1055 A. Yes, sir.

By Mr. Butler:

Q. Were they made in the same way as were Exhibits 34 and 35 and Exhibits 37 and 38, except that no Griess reagent was used? A. Yes, sir.

Q. So, these biscuits are made in the ordinary method, suitable for food?

A. Yes. It would be a biscuit such as might be made from any flour on the market.

Q. These biscuits appear to be different in appearance. Was the same method employed in both?

A. I think there was a little more water in the one.

Q. In which one?

A. In this one, No. 39. 39 had a little bit more water than 40.

Q. How does it happen that the external appearance of No. 40 seems smooth, and 39 seems relatively rough?

A. I moulded that in my hands, to make it smooth, and this one, I made a little more soft, a little more like the drop biscuits, and of course, it was left to assume whatever form it would in the pan.

Mr. Butler: They are offered in evidence.

Q. (Showing the witness Government's Exhibits Nos. 41 and 42) I call your attention to Exhibits 41 and 42, being what purports to be a half biscuit, and ask you if you baked them?

A. Yes, sir.

Q. On what date? A. On the 11th of June.

Q. Were they of the same set as was Exhibit 39?

A. The same as 39, yes, sir.

Q. And made the same way? A. Yes, sir.

Q. Both of them?

A. Yes, sir. These are parts of one biscuit.

Q. And made from the same flour, and made from the same dough?

1056 A. Made from the same dough, exactly.

Q. That was Exhibit 13, the flour which has been seized here? A. Yes, sir.

Q. I notice the nitrite reaction test color, on Exhibit 42?

A. I dropped some of the Griess reagent on this biscuit, after the baking, and this one has been untreated, simply showing the difference.

Q. That is, to 42 you applied the test?

A. I applied the Griess test, after baking, but 41 I did not.

The Court: Each half of the same biscuit?

A. Yes.

By Mr. Butler:

Q. So that Exhibit 41 and 42 taken together, make one biscuit? A. Yes, sir.

Q. I thought it was part of two biscuits.

A. No, sir, part of the same biscuit.

Q. One has the Griess test put on it, and the other has not. That is the only difference?

A. That is the only difference, yes.

Mr. Butler: These are offered in evidence.

(Thereupon the Court adjourned to ten o'clock a. m. Tuesday, May 14th, 1910.)

1057

Morning Session.

Kansas City, Missouri, Tuesday, June 14, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

Hannah L. Wessling, in continuation of her direct examination further testified as follows:

By Mr. Butler:

Q. When you made these biscuits which have been offered in evidence do you know whether or not the mixture was acid or alkaline in its character after you had added the Griess reagents? A. It was acid.

Q. Did you determine the amount of ash contained in any of the flour that was seized? A. I did.

Q. What was it? A. .57 per cent.

Q. Of one per cent? A. Yes, sir.

Q. How does that quantity compare with the ash contained of patent flours that you have become familiar [—] in your work?

A. It is considerably above a patent flour.

Q. Did you examine the ash content of many patent flours?

A. I have very many.

Q. And the character of the gluten, have you observed that in this seized flour?

A. Yes, sir, I washed out the gluten and that amount was above that, that I have been accustomed to find in the regular patent flour, and the character was such as to indicate a flour of inferior grade.

Q. In what respect would the character indicate that?
1058 A. It was tough and less elastic than gluten from the patent flour; besides it had the grayish color of a bleached flour, not being yellow as unbleached flour is.

Q. Now as [the] the baking qualities of the seized flour did you observe that with respect to the loaf volume and the color and flavor?

A. Yes, sir; I baked up the flour from this seizure sample and had at the same time the brand that we thought was a standard patent Aristos to compare with it, and the loaf volume in every case was smaller than that of the patent flour.

Q. One time 89½ per cent of the other, of the loaf volume made from the aristos?

A. Yes, various figures, but in every case was considerably smaller than that of the patent I used at the same time; then in addition the color was different, being of a dull grayish color and dead or lifeless, not having the brightness or the silkiness that the unbleached always shows.

Q. Now as to the flavor?

A. The flavor was—the flavor of the seizure I might designate as being flat; while that of the patent, the unbleached patent that we were using at the time was very—well, sweet and palatable, nutty you might say.

Q. And as to the presence of nitrites in the bread made from the seized flour?

A. Well, that we have been stating over and over again, the presence of the nitrites with the Griess re-agent.

Q. Now speaking of bleached flours generally I want the benefit of your observation and experience as to the effect upon the gluten of bleaching upon the quality and quantity of the gluten?

A. The gluten seems always affected and the quality especially is noticeable, but we have also noticed that the quantity recoverable is less in the bleached flour than from the grinding unbleached flour; the quality, though, is especially noticeable, being less strong and less elastic than the gluten from the corresponding unbleached flour; it seemed always to have that effect on it.

1059 Q. Now as to the effect upon flavor?

A. The flavor is always injured; there is either simply a flat flavor, or if not that; it has a strong flavor, leaving an unpleasant after-taste.

Q. And as to the color of bread?

A. The color of the bread made from the bleached flour is very often lighter, I might say usually lighter, but nearly always, or might say almost invariably it has that dull dead appearance, quite dead, from the unbleached flour.

Q. Now, generally speaking, what has been your observation of bleached flours generally, whether or not they produce bread which will give a nitrite re-acting material test?

A. Beg pardon, I don't believe I quite got the question.

Q. Do you find nitrite re-acting material in breads made from bleached flour, generally?

A. Why, there is enough nitrite re-acting material in the flour to give a decided re-action, you always get it in the bread, I have never known any case where there was sufficient to give a decided re-action in the flour where you did not find some in the bread.

Q. Now, do you know whether it is possible to so manipulate the dough, either by use of yeast or otherwise, as to—I

mean, large quantities of yeast, so as to lessen or eliminate the nitrite re-acting material from the bread?

A. I don't know it from my own experience, but I think that it is.

Judge Scarritt: That is enough.

By Mr. Butler:

Q. Well, have you had any observation that would justify an opinion upon that point? A. I have I think, because the—

Judge Scarritt: What he thinks he has, if Your Honor please, don't—

Mr. Butler: No, we go by what she has observed.

The Court: She may answer.

A. I might say that I failed to notice that word "lessen". Kinds that I have used have shown a lessening, so I
1060 think I am prepared to answer that. The longer the yeast acts on bread, as my experience has been, that raises bread, the longer the yeast acts on it the less is the amount of the nitrite re-acting material left in it, so I think it is possible to so manipulate it that excessive amounts of yeast and long rising, that you might get rid of possibly all, but it is not the usual method or could not be considered a method of general use.

Q. Now, with respect to the methods employed by you in making the bread from bleached flour and other flour for the purpose of comparison and which left this nitrite re-acting material in the bread, how do those methods compare with methods of bread making ordinarily followed for the manufacture of baking of bread for consumption, use?

A. The method that we use and called the domestic method was based, as nearly as possible, on the method used in the household. We give it even the extreme of raising so as to be as fair as we could. The method known as the Koellner method gives a bread that is very comparable with ordinary home-made bread in texture and flavor, and so forth.

Q. Have you been able to observe which of the two methods, if there is any difference in results, leaves the bread yielding—other things being equal—leaves the bread yielding the stronger re-action, that is, the Koellner method or the domestic method?

A. The Koellner method leaves a larger amount of the nitrite re-acting material in the bread because it is raised, in much shorter time than the other.

Q. Now, in making your determinations or examinations as to flavor the effect upon the flavor by bleaching, how has

that been by immediate comparison, tasting one, and then in a short time tasting the other, or about the same time?

A. Yes, sir, we take the two samples, but we were either blind-folded or had our eyes closed, in some way not able to see the bread, so that we were not prejudiced by the color, but tasting one, and after a few moments, tasting the
1061 other. Comparing the flavors in that way of these two samples which we did not know apart, we determined which was the better, in our opinion. Then where we were able to look at them after we made up our mind and found out which was which.

Cross-Examination

By Mr. Smith:

Q. How long have you been in the employ of the Government Pure Food System?

A. A little more than two years and a half.

Q. What is the character of your work there?

A. Analytical chemistry.

Q. Describe to us a little more fully what that is, will you?

A. Well, if I am employed on the regular work I have different food materials given me to analyze to determine the constituents that we desire to know. We analyze these substances just as they would, I suppose, in any chemical laboratory.

Q. I see. How much of your time in the Government's service is devoted to cooking, baking, and so forth?

A. I couldn't say exactly how much or what proportion, but quite a good deal of this flour work has necessitated my baking bread from the flour in order to make our determination on the bread as well as on the flour itself.

Q. How much of your time during the last two years have you devoted to bleached flour?

A. I should say the greater part of the time.

Q. What has been the character of your work on bleached flours?

A. Both analysis of the flour itself and the determination of the gluten and the baking of the bread, and the analysis later of the bread.

Q. The flours that you have examined have been both bleached and unbleached? A. Yes, sir.

Q. Now, in the examination of flours do you go to the
1062 mill and get the two, the bleached and the unbleached, or do you ask for it in your laboratory?

A. We do both; the inspectors we send out to get flours from the mills, and they get both the bleached and the unbleached from the mills, and we also have unbleached flour sent to the laboratory which was bleached there.

Q. Bleached there, what has been the majority of your work, on bleached flour at the mill or bleached at the laboratory?

A. Well, I guess it was pretty evenly divided.

Q. What system have you used in bleaching flours at the laboratory, the method of generating nitrogen peroxide, how is it generated?

A. From [ferrous] chloride, potassium nitrate and hydrochloride acid, chemical re-action.

Q. In your laboratory did you ever use an electric apparatus to generate your nitrogen peroxide?

A. We have not had that apparatus to do it with.

Q. You know, as a matter of fact, do you not, that most mills over the country, Missouri and Iowa and Kansas and Nebraska, and all over where the bleaching is so nearly universal, use electric apparatus?

A. I think a good many do, but from the reports we have from the inspectors we found that there were chemical bleachers, nitric acid bleachers, and so forth used.

Q. Your investigation along that line has been aiding the department in its contest with the millers on the question of whether they had a right to bleach flour; that has been the purpose of your investigation?

A. Well, they asked us to find out mainly the differences between bleached and unbleached flour.

Q. That has been done in connection with Mr. Bigelow or the department that he is connected with?

A. Well, the authorities at Washington, of course, 1063 would give orders.

Q. Well, your purpose was, you knew your purpose was to aid the Government in these different contests that had been started over the country?

A. I was simply given the work to do; I tried to do what I was asked to.

Q. Did you have other flours from Nebraska that you investigated?

A. Yes, sir, we had flours from there.

Q. A good many from a good many different mills?

A. As far as I remember we had flours from all over the country.

Q. Do you remember whether or not you had the flours from I will say, from the Updike Mill in Omaha?

A. Yes, sir, we had a flour from there.

Q. Did you have samples of their bleached and unbleached?

A. Yes, sir.

Q. Did you have any samples of theirs that was seized?

A. I don't remember now, I don't remember whether we had a seizure sample from there or not; I suppose I could

look it up on our sheets but I have not figures or anything with me.

Q. You have not a recollection as to whether you had any of the samples, whether you investigated any of the samples from the several cars of theirs that were seized, you know nothing about that?

A. At present, you mean, I would not like to say because I am not sure whether I had anything to do with the seizure samples from there.

Q. And you could not give us anything about the results that you determined from those?

A. I don't remember anything in connection with this Updike Milling Company.

Q. Do you remember whether you had any of the Wells-Abbott & Nieman from Nebraska where the Government seized it?

A. I know we had a sample from the Wells-Abbott, but whether it was a seizure sample I don't remember.

1064 Q. You have no recollection as to that?

A. I usually kept the flours, samples, by numbers and did not always know the history of it.

Q. From your general information did you learn whether or not those were seized that the Government has seized?

A. I don't remember about the seizure samples.

Q. Well, did the Government get samples from those mills that were not involved in the seizures?

A. Yes, sir; yes, sir, we [has] samples from them that were not connected with seizures.

Q. You had some unbleached?

A. Yes, sir, we had both bleached and unbleached.

Q. Do you know whether you had samples of the bleached from the Updike Milling Company, Wells-Abbott & Nieman, that were not involved under their seizures? A. Yes, sir.

Q. Do you know that they were not involved, though?

A. I felt pretty confident because it was before these seizures were made.

Q. When was it?

A. I should say that would be the summer of 1908, that would be two years ago this summer.

Q. Did you have any experience with flour from those mills in 1909? A. I would not be prepared to say now.

Judge Scarritt: We can't hear you.

A. I am not prepared to say because I don't know the history of all the flours that I have worked on; I had them by numbers; I am more familiar with them on that point.

Q. Prior to this seizure did you ever have any sample of the flour from this mill, the Lexington Mill & Elevator Company? A. I don't remember that.

Q. Prior to this seizure did you ever have any of their unbleached flour sent to you? A. I don't remember that either.

Q. Prior to this seizure did you ever bleach any in your laboratory of the flour that came from this mill?

1065 A. Not to my knowledge.

Q. Did you ever, prior to this time, make any examination of their flours at all? A. Not that I know of.

Q. Have you had any examination of any flours from the mills in Missouri before this trial in your work here?

A. I don't remember exactly, but I think I must have had.

Q. Can you recall any? A. No, I do not.

Q. Do you remember whether you have had any flours from a mill up here at St. Joe, Clark's Mill, I believe it is?

A. I don't remember that either.

Q. Do you remember whether you had any flour from the mill of Waggoner-Gates at Independence?

A. Yes, sir, we had.

Q. Examined that, have you? A. Yes, sir.

Q. How recently?

A. That was two summers ago, two years ago.

Q. Have you had any of the Waggoner-Gates in the last two years? A. I couldn't say whether we have or not.

Q. Do you remember whether you had any flour from the Lexington Mills in Lexington, Missouri?

A. I don't remember.

Q. What mills do you recall that you had flour from?

A. I know we have had the New Ulm flour.

Q. Where is that?

A. Nebraska, and we have had "Aristos" flour.

Q. When did you get "Aristos" flour?

A. We have had that several times recently.

Q. Bleached or unbleached? A. Unbleached.

Q. You get any "Aristos" bleached flour?

A. No, none that was sent from the mill as bleached.

Q. You bleached that in your laboratory?

A. I don't believe we bleached any of the Aristos at our laboratory.

Q. Did you get any of the bleached flour from Kansas City?

A. Of this Aristos?

Q. Anybody here in Kansas City?

A. I don't remember any.

Q. Do you recall of any flour that you got from Missouri, that was bleached?

1066 A. From Missouri. I don't remember, sorry to say.

Q. Have you been in this chemical analysis department of the Government for two years?

A. Yes, sir, two and a half.

Q. Now, where were you engaged and employed prior to that?

A. Just prior to that I was teaching chemistry in the high school at Newport, Kentucky, for two years.

Q. For how long were you there? A. Two years.

Q. And your work there was that of the teaching of chemistry? A. Instructor, yes, sir.

Q. And where were you employed prior to that?

A. In the Woman's Medical College of Cincinnati.

Q. How long were you there? A. Four years.

Q. And what was the nature of your work there?

A. Teaching chemistry to the medical students.

Q. And [what] were you employed before that?

A. That was immediately after my graduation.

Q. And how long were you in school before that?

A. Well, I took the regular academic course, that is four years, in university work, and then followed it with a year post-graduate work.

Q. So that is five years you put in at that?

A. Put in at the university.

Q. So five years there, and four years in the medical school, two years in Kentucky and two years in the Government, that would be thirteen years. During that thirteen years you have been engaged either as a teacher of chemistry or in school yourself? A. Yes.

Q. Or in the employ of the Government. Now, where did you attend school?

A. At the University of Cincinnati.

Q. There at your home? A. Yes, sir.

Q. Now, during your chemistry work with the Government have you been called upon to analyze different food products, especially from flour?

1067 A. Yes, sir.

Q. What other food products?

A. Just whatever is sent to the laboratory.

Q. Well, what does that include, please?

A. Spices and jams and jellies, preserves.

Q. Does it cover meats at all? A. No, sir.

Q. Does it cover corn starch?

A. I have never had any corn starch to analyze.

Q. Have you ever examined any other food products for the purpose of ascertaining the presence or absence of nitrates? A. No, sir.

Q. Well, in your study of chemistry you became quite familiar with the subject of nitrites and their presence in different products, did you not?

A. Not to any great extent.

Q. As a student of chemistry and as a teacher of chemistry didn't it involve the subject of nitrites and their presence and their cause and their effect?

A. No, that would not come into my work, of course, the presence of nitrites and their nature, but not their physiological action, because—

Q. But the presence of nitrites, didn't it?

A. That is the production of nitrites in nature, and what nitrates there were, such as nitrous acid, such things, as looked upon from a merely chemical standpoint.

Q. Now, merely from a chemical standpoint state whether or not you know about where you find nitrites?

A. Well, they are found as a result of decomposition in nature, decomposition of organic matter.

Q. Yes, sir, where else?

A. There are some in saliva as a result of decomposition.

Q. Do you know the amount in the saliva?

A. No, I do not recall the figure.

Q. If you find it in the mouth of a little infant child it is the result of decomposition, is it? A. Possibly.

1068 Q. Well, possibly not?

A. I don't know enough about it, really, of the origin.

Q. In your study of chemistry did you learn it was present in the mouth of an infant child?

A. I knew it was present in the saliva, yes.

Q. Did you ever make any examination to determine the amount? A. No, I did not.

Q. Well, in your study of chemistry did you learn it was in the atmosphere?

A. Sometimes, yes, in very minute traces.

Q. As a student of chemistry or a teacher of chemistry have you had occasion to weigh the amount or determine the amount? A. No, I never did.

Q. Is it in the rain as it falls?

A. Might be in a large city where the atmosphere is—as a result of various impurities, there might be some.

Q. In the city they would not be in the country?

A. Well, a greater amount of combustion going on and decomposition.

Q. Does combustion create it?

A. In the smoke, yes, might be.

Q. Combustion of what? A. Well, various—

Q. Anything? A. I suppose any combustible material.

Q. What? A. I think would would, probably.

Q. Burning up wood creates nitrites, does it?

A. I couldn't say from my own experience because I never—

Q. From your general knowledge as a student and teacher of chemistry what would you say to your pupils, say nitrites form from a combustion of wood?

A. I would say I think so, but I am not sure.

Q. If it were the combustion of coal what would you say?

A. The same thing, that I think so, but I don't know; I think so, but I didn't know.

Q. If it were the combustion of gas what would you say?

A. Possibly there too.

Q. And if the pupil had asked you if there would be nitrites in the kitchen where the housewife is burning coal, what would you have said to her, said to the pupil?

A. Possibly be formed there, but carried off through the chimney.

Q. Well, but if the heat comes out into the room what would you say as to whether or not that would create nitrites?

A. Why, but the smoke does not come out into the room.

Q. No, I am not speaking of the smoke; I am speaking of the heat; what would you have said to them if they asked you if there was nitrites formed by the burning of gas fumes?

A. Possibly a small amount formed there.

Q. Some formed there? A. Possibly.

Q. And the amount which is formed there would be in circulation through the room?

A. Well, it would be there for a time.

Q. What would you have said as to whether food products exposed on the kitchen table would take up any of those nitrites?

A. I don't know whether there would be enough there to show any re-action.

Q. What would you say as to whether different food products if being prepared for company, in the kitchen where a gas stove is, say, or where the gas light is burning, would you say that would take up any nitrites?

A. I hardly think so, not enough no notice.

Q. Did you ever make any test of this?

A. No, I have not.

Q. Did you hear Dr. Marshall's testimony to the effect that corn starch took up two and a half parts per million, did you hear that?

A. No, I was not present during his testimony.

Q. As a chemist do you think that is possible?

A. Well, I do not really know because I never done work in that line.

Q. Well, I know, but I am just asking you for your scientific knowledge as a scientific chemist, as a teacher of chemistry would you say it was possible for corn starch to take up two and a half parts per million of nitrites?

A. I would not be prepared to say, because I don't know.

1070 Q. You would not express any opinion upon that?

A. No, sir, not at all.

Q. You wouldn't say it could not?

A. I wouldn't say it could not, and wouldn't say it could, because I don't know.

Q. You don't know but what it could take up some?

A. Possibly a small amount, but a very small amount.

Q. Would you regard two and a half parts per million as a small amount? A. No, that would be considerable.

Q. That was a good deal more than you found in this flour?

A. Something more.

Q. And if corn starch did take up from the air two and a half parts per million, that is, it took up considerably more than is imparted to this flour by this process, wouldn't it?

A. Something more than that.

Q. It would be the same form as nitrites?

A. If bleached there as nitrites, I suppose they would be the same.

Q. Now, if you had some corn starch in which nature had imparted two and a half parts per million, and you had mixed that up with the Griess re-agent the same as you mixed this biscuit that is marked Exhibit 34, I think it is, you would have had the same color?

A. I never had corn starch containing nitrites.

Q. Let me have your opinion, if you took corn starch in which nature had imparted nitrites equal to two and a half parts per million, and you had mixed that up with this Griess re-agent until you had a sticky mashy stuff you had in this, wouldn't you, it would exactly be the same color?

A. If the nitrites were present to that extent, I think that the color would be brought out.

Q. Anything which had nitrites in it in an equal amount, whether imparted by nature or the Alsop process, would show the same discoloration? A. Well, probably.

Q. And if you took meat that had been smoked, or if the smoke came in contact with it, that is a product of combustion, and nitrites had been imparted to the meat by that process, and then you drew some of the liquid from the meat, or soak it in bread, and then apply that same solution, wouldn't you get the same color?

A. I don't know anything about the smoked meats containing nitrites.

Q. No, but I am assuming that it does, and that you draw it off and get the liquid containing the nitrites, and then apply this same Griess re-agent that you applied to this, wouldn't you create the same result?

A. I suppose any substance that contains nitrite re-acting material would give you that pink coloration that the Griess does.

Q. No matter where you apply the Griess re-agent?

A. I think so.

Q. Then if you took bacon which had 1.8 parts per million or two parts per million, bacon that had been put in by the curing process, and you drew the fluid off of that and then apply your Griess re-agent, you get that same color?

A. If the nitrites are there I suppose you get it, only I don't know anything about the presence of nitrites there.

Q. Do you know what is the effect of salt or saltpeter in curing meats as to whether or not that imparts nitrites?

A. I don't know.

Q. Have you never made a test of that? A. No, sir.

Q. But from your scientific knowledge of chemistry would it? A. I don't really know.

Q. Can't you as a chemist tell us what would be the effect of curing meats with salt or saltpeter?

A. No, I never read much on that, or investigated it.

Q. I know; what would be the effect on any meats, curing them as they are ordinarily cured in the packing houses, or as they are cured, or the different places where they are prepared, do you know what would be the result of that?

A. No, I do not.

Q. As a chemist can you tell me what would be the result if a farmer cures his meat, salts it down, pickles it, as
1072 we sometimes say, do you know whether or not that would impart nitrites?

A. I do not really know.

Q. Well, if it did impart nitrites to it and you apply the Griess test, it would color the same as this biscuit?

A. As I said before, everything that contained nitrite re-acting material would give you that coloration.

Q. If from a little child you should collect its saliva, in a tube like that, in a tube that is marked Exhibit 29, if you should collect the saliva of an infant child nursing at its mother's breast, in that tube, and then apply your Griess re-agent, would you get the same color as you do of this?

A. I don't think you get anything like that color at all.

Q. Did you ever sample it?

A. I have made a test of saliva, yes.

Q. Didn't you get the pink coloration there?

A. It was very hard to see, very hard to see.

Q. When did you test that?

A. When I was teaching in the medical school.

Q. But you did get the pink discoloration, did you?

A. Well, I think I saw it, but it was very — a very unsatisfactory test.

Q. What were you testing?

A. Just to demonstrate to the pupils the presence of nitrites there.

Q. In what?

A. In the saliva, and we tried very hard, and it was a most unsuccessful test.

Q. Did you get any pink discoloration at all in the experiment you performed there?

A. As I say, I thought I got a faint trace of it, but it was so faint that the pupils wouldn't say that they had seen it.

Q. Well, if you saw any pink there it was because nitrites were present? A. Yes, sir.

Q. If you take absolutely pure water or absolutely pure saliva and subject it to this treatment, it don't show any discoloration at all, that is, if it is free from any
1073 nitrites?

A. No, it wouldn't show anything.

Q. But if there be nitrites there at all it will show it, will it?

A. Well, as I say, it must be there in very small amounts because we were not able to detect it.

Q. Now, did you hear the testimony of Dr. Jones, I think it was, of New Orleans, who, as I recall it, testified in the human saliva there is sometimes as high as I think he said, ten parts per million? A. I did not hear Dr. Jones' testimony.

Q. If there were ten parts per million in a human's saliva, what would it show, if anything?

A. Ten parts to a million.

Q. Ten parts to a million would be a good many times what you found here, wouldn't it? A. Yes, several times.

Q. So no matter whether we find it in meat or in flour or in the saliva or corn starch, or where you find it, if you subject it to this Griess reagent treatment, it shows up pink, don't it?

A. Yes, I think that is the test for nitrite re-acting material wherever found.

Q. And if I had some corn starch in one of these small receptacles that Dr. Marshall said he found contained two and a half parts per million and I subjected that to the treatment of this Griess reagent as you did this biscuit, how would the color which I would get from that, compare with the color of this biscuit you made?

A. Well, if there were that much nitrite re-acting material there, of course I don't know whether there would be, if there were, I think it would give you a pink coloration comparable with that.

Q. Well, you mean equal to that? A. You said 2.5.

Q. 2.5? A. Probably just a little bit better than that.

Q. Be a little pinker than that? A. Possibly.

Q. And yet the corn starch as you look at it would be perfectly white, wouldn't it? A. Yes, sir.

Q. Now, what is it that does it, is it the corn starch
1074 that turns pink when I put that on there?

A. I think Dr. Hulett gave a very good explanation.

Q. Never mind what Dr. Hulett said; what do you say it is? A. Well, I can only repeat what he said.

Q. I don't remember what he said I prefer having it original from you; what do you say, is it the liquid which turns pink?

A. It is neither the one nor the other. It is the re-action between two substances that are present, the nitrites in the flour show in these various substances, with this combination of sulphanilic acid and the hydrochloride in this color compound.

Q. What is the composition of this Griess re-agent?

A. It is made of two substances, sulphanilic acid dissolved in acetic acid; it is a solid; it is dissolved in acetic acid. And the other portion is made of alpha-naphthyl-anine-hydrochloric, dissolved in acetic acid.

Q. Now what is acetic acid made of?

A. Well, acetic acid contains carbon, hydrogen and oxygen.

Q. How much carbon, how many parts? A. Two parts.

Q. And how many hydrogen? A. Four.

Q. And how much oxygen? A. Two.

Q. Now, is that a combination of these different elements, is it? A. Yes, sir.

Q. You don't get acetic acid in that combination as made by nature, or does the druggist make it?

A. I think it could be formed in nature, yes, certainly, it is formed.

Q. If you go to the druggist and call for acetic acid you can get it in a bottle, can you? A. Yes, sir.

Q. Now, is that the result of a combination of different elements together?

A. Oh, no, he derives it from something else or the chemist who prepares it derives it.

Q. That is, the chemist took different elements in compounding that? A. Yes.

Q. From what does he extract it?

1075 A. Well, a great deal of acetic acid is made by the oxidation of alcohol.

Q. That is where they get the foundation for it?

A. I think a good deal.

Q. Well, now, according to these tests that you made here, is it obtained from woody substances—acetic acid?

A. It can be obtained from woody substances, yes, sir.

Q. What kind of wood? A. Well.

Q. Decomposed?

A. I don't know whether it is—it may enter into decomposition of wood, that is, it might be in soil decomposition it might be.

Q. Well, now, what is this other substance derived from that you use to make up this re-agent?

A. Acetic acid though, that is a synthetic compound, I don't remember, it has been so long since I have been connected with that kind of chemistry that I have forgotten, largely, I would not like to make statements.

Q. Well, this Griess re-agent to which you subjected this in order to determine the color is known in chemistry to be the most delicate which is known to chemical science, isn't it, for the purpose of detecting the presence of nitrites?

A. It is a very delicate test for nitrites, yes, sir.

Q. The most delicate test of science, isn't it?

A. I think so, yes.

Q. And so delicate is it that it will detect it if there is only one part in ten or one hundred millions, won't it?

A. I don't know just the limit of it.

Q. What is the limit, so far as you know?

A. I couldn't say now.

Q. Could you detect it where it is in a greater state of solution than one in a million. A. Oh, yes.

Q. One in ten million?

A. That would be one-tenth, yes.

Q. Well, be one in fifty million?

A. I don't know how far it goes beyond one-tenth.

1076 Q. But you know it will run one-tenth in ten millions?

A. Yes, sir, I'm sure.

Q. In other words, do you mean—is that measured by volume or weight?

A. By weight.

Q. So, if you had one ounce of that in weight—

A. And I am referring to the nitrogen, I beg pardon for interrupting.

Q. Yes, nitrogen.

A. That is nitrogen as nitrite, in nitrite dissolved.

Q. Well, I mean nitrogen as nitrite, so if you had one grain of nitrogen as nitrite in fifty million grains of it, this test is so delicate it would detect it, wouldn't it?

A. I don't know now about the fifty million because—

Q. Pardon me, I didn't mean to put it at fifty; I meant to say ten million. A. Yes.

Q. If you had one grain of it in ten million grains of the other? A. Yes.

Q. It would detect it? A. Yes.

Q. So minute, and would show the pink coloration?

A. Yes, sir.

Q. Now, getting that down to quantities we can comprehend a little better, if I had a pound of it put in with ten millions pound of flour, this test is so delicate that it would detect it, wouldn't it?

A. One part in ten million could be detected, yes, one part of nitrogen.

Q. To get that down where we can comprehend it a little better, a million pounds of flour would make about forty carloads, ten million pounds would be four hundred.

Mr. Butler: One moment. These questions, it seems to me, are purely a repetition of the result of a manifest computation.

Mr. Smith: I am trying to show how extremely delicate this test is.

Mr. Butler: It has been stated over and over again and the same speech has been made a great many times, and
1077 my idea is we will proceed faster if we would save our speeches until the evidence is all in.

Mr. Smith: I think I have got a right to cross-examine this witness. We will get through with this in less time than it takes you to state it.

Mr. Butler: I know, we want to set a [precedence] so you will confine yourself to something that has something to do with the case.

Mr. Smith: I don't think we are consuming time here unnecessarily.

The Court: Well, go ahead.

Q. If it be true, then, that a million pounds would make forty carloads, this is so delicate that if you had one pound in four hundred carloads, this Griess test would detect it, wouldn't it?

Mr. Butler: I think I will enter an objection to that, not calling for information, it is manifestly a mere mass of arithmetical computation; it is not a test of the witness.

The Court: Well, I am going to save my talk about this case until you gentlemen are all through. At that time I am going to make a few observations to the jury, and whether they will be mild observations or not, I can't tell; that is, I won't tell; I could tell. As I understand it the Griess test is denounced because it is so accurate, is that it, so accurate?

Mr. Smith: No, I am not denouncing it at all.

The Court: Go ahead.

Mr. Smith: I am not finding fault with it, in the least.

The Court: Go on, go on.

(Question read by the reporter.)

A. Why, I would have to—

Q. Now, in making the bread that you did in this case, and which was exhibited to the jury, did you use what you
1078 term the Koelner method or the domestic?

A. The bread that Dr. Hulett used, you mean, or this?

Q. This exhibit that you put in.

A. I have bread made from both methods.

Q. Now describe them to me, the Koelner method as you used it?

A. The Koelner method is—in that I used 340 grams of flour with 5 grams of salt and—

Q. Pardon me, these measurements, you know, I don't think the most of us understand. 300 grams of flour would be about how many ounces?

A. About twelve ounces.

Q. About twelve ounces of flour?

A. And 5 grams of salt would be about $\frac{1}{6}$ th of an ounce, that is, just roughly.

Q. $\frac{1}{6}$ th ounce salt.

A. And 10 grams of yeast, is about $\frac{1}{3}$ rd of an ounce,

Q. Yeast $\frac{1}{3}$ rd of an ounce—pardon me, what kind of yeast did you use?

A. I used compressed yeast.

Q. What is the name?

A. The yeast we usually used is Callahan's.

Q. What else did you use?

A. And 12 grams of sugar which would be between a third and a half, I forget just what it is now.

Q. Of sugar, these were all the ingredients?

A. Then the water determined by the observation of the flour, that varies.

Q. How did you determine that?

A. Weighing out a certain quantity, 30 grams of flour, and doughing it up with a certain fixed amount of water, and finding whether it will make a springy and elastic dough. If the amount that you begin with is not sufficient, you take just a tiny amount, well, of course, it is always measured, and shake it up again, finding whether it gives you the proper consistency to work smooth.

Q. You kept adding flour until you had it to proper consistency?

A. I added the water, I started with a certain amount of flour and added water.

1079 Q. Do you know how much water you actually added in each instance? A. Yes, sir, I kept a record of that.

Q. What was the amount in each?

A. In this particular case, 305 cubic centimeters, which is something over—between six and seven liquid ounces, I think somewhere near seven.

Q. The same in each one?

A. Each flour requires its own amount to get the dough the proper consistency.

Q. That is what I was aiming to ascertain, the amount different flours required, different amounts of water?

A. Yes, sir.

Q. You could not fix an arbitrary amount to put in each one?

A. No, the dough would be too soft in [same] cases and too stiff in other cases.

Q. Now, in the Koelner method how long did you let it set?

A. Why, in the Koelner method we mix it together for ten minutes and then knead it for ten minutes. I should add that one-third of the flour is kept back, for the kneading purpose two-thirds taken at first to mix up and one-third retained and taken for the kneader, then the dough is taken from the kneader, molded into a loaf and set in a pan and set it in the closet to raise.

Q. How long did you let it raise?

A. Until it reaches a certain stage.

Q. I ask what that is?

A. It would vary with different plans.

Q. What were the variations?

A. Oh, they were, if I go over all my experience, varying—

Q. Can't you give us the limits, two hours or four hours, or whatever the fact was that way?

A. From perhaps less than an hour to two hours and a half. Some loaves set for an hour and some for two hours and a half at different times; they all raise to the same height exactly before they would go into the oven; then they were baked until they lost just 30 grams moisture which would be about the weight of one ounce.

Q. So in determining when to put it in the oven you governed yourself wholly by the time it took to rise to a certain level? A. Yes.

1080 Q. And after you put it in the oven you let it bake until it has lost a certain amount of moisture?

A. Yes, sir.

Q. That is what determined you in taking it out of the oven? A. Yes, sir.

Q. You think that is what the average housewife goes by when she takes the bread out of the oven?

A. She goes by guess, if she thinks it is done; we find that this gives us a loaf that is done.

Q. Now, in making it by the domestic method how did you do it?

A. There I use three-quarters of the flour and made a sponge, with the yeast and the salt, the yeast was less than in the former case, being about one-fifth of an ounce, the salt was just the same, five grams, or one-sixth of an ounce, about, made a sponge and let it rise until it had just doubled its volume.

Q. By measurement?

A. Yes, then kneaded it with the balance of the flour, and the sugar, which was a little less than in the former case, this time, 10 grams, say one-third of an ounce, and I usually kept back a portion of the water in making the sponge so that I would be able to get the right consistency later, because the flour is always wet, we always have a definite amount of flour and the water we can change or add as we find it necessary.

Q. Yes.

A. I think a housewife, however, would generally add more flour, but of course we were making the comparisons, we had to be fair to every flour, and would always use the same amount for comparison; that was the only reason for not putting in the water at first; this was kneaded then for ten minutes and put back in the crock in which it was received, set in the window to raise the second time.

Q. How long did it raise the second time; how long did that take? A. Well, that would vary, too.

Q. You reached what results?

A. I don't remember the time for the second raising exactly.

Q. Well, about what was it?

A. Well, perhaps an hour, an hour and a half; and then it was ready for the working down a third time and the
1081 molding into the pan, then left in the pan again until it reached the gauge.

Q. How long did you let it remain there?

A. Well, there again it would vary perhaps from half an hour to an hour.

Q. But you just let it set until it reached a certain gauge as you said?

A. Yes, so that we could have fair comparisons of all.

Q. And then put it in the oven? A. And baked it again.

Q. Until it lost a certain amount of moisture?

A. We determined that by the loss of weight, yes.

Q. So in determining when to remove it you went to look at the amount of moisture that it had lost?

A. Yes, sir, because that is a little more definite than the other way, but I could tell almost exactly by the length of time just as a housewife about how long it takes to bake the bread.

Q. She goes a good deal by the looks of the loaf as to when it is done? A. Yes, certainly.

Q. You go by the amount of moisture that it has lost?

A. Because we had the oven at a certain temperature, and these things are a little more regular than the housewife's.

Q. Now when you made these biscuits that have been offered here where you mix them with the Griess re-agent, of course no person would—you never heard of a person who pretended to prepare biscuits that way?

A. I would not like to do it myself.

Q. Even that which is made of the unbleached flour, you would not say that was palatable or fit for food?

A. No, indeed, it was not intended to be.

Q. It is wholly unfit for food, isn't it?

A. Yes, sir; yes, sir.

Q. It would be just as deleterious or injurious or nauseating as the other would be, wouldn't it?

A. I think it would be just as nauseating because that re-agent is very disagreeable.

Q. Yes, sir, is it injurious? A. I should think so.

Q. Suppose I take this biscuit made from unbleached
1082 flour made as you did there, suppose I ate it, would it have a deleterious effect on me?

A. I would not like to have you do it.

Q. You think it would be injurious?

A. I am afraid it would.

Q. As a matter of fact you put into it an exceedingly poisonous and dangerous substance?

A. Oh, we simply used that re-agent to see what the effect would be.

Q. None of this, of course, you don't pretend to prepare that according to any rule for preparing human food or food for human beings?

A. Not where the re-agent is used, no, sir.

Q. It is simply to show what would be the effect of the re-agent on the different kinds of flour? A. Yes.

Q. And for the purpose of demonstrating that there was a certain amount of nitrite in it? A. Yes.

Q. No housewife in the preparation of any food uses this reagent? A. No, I never did before in my life.

Q. No, it is never used around the kitchen, is it?

A. No, sir.

Q. And no article intended for food would ever be mixed that way? A. Well not with that Griess re-agent, no.

Q. That would destroy it absolutely, wouldn't it?

A. Yes, sir.

Q. In making these biscuits that you use here for demonstrating the effect of the reagent can you give me the amount of flour you put in each of these biscuits?

A. I took 125 grams of flour and used that in making the three—125 grams made three biscuits.

Q. Three biscuits, so each of these biscuits contained one-third of that? A. One-third of that.

Q. Then in each biscuit you used what amount of the reagent?

A. Why, I used—the re-agent I used 23 cubic centimeters.

Q. In each biscuit?

A. Well, each one that I used the re-agent in.

Q. Yes, this one that has been offered in evidence here?

A. With the strong re-agent, yes.

1083 Q. There are 23 CC now in that biscuit?

A. Yes, sir.

Q. And what were the other ingredients of that biscuit?

A. Well, I mixed up that flour and the salt and baking powder and lard first.

Q. Now how much salt?

A. I used 125 grams of flour, three grams of salt.

Q. All right.

A. Four grams of Royal Baking Powder and 20 grams of lard.

Q. That was for the three biscuits?

A. Yes, for the three biscuits.

Q. For each individual biscuit you put the 23 CC.

A. One-third of that.

Q. 23 CCC means a great deal to you but nothing to us?

A. It is a good deal less than a liquid ounce; I can show you better—

Q. Show me in this, as compared to that you have there (showing flask to witness)?

A. It would be just about there, that amount of liquid (indicating on flask).

Q. What is that exhibit you have there? A. Exhibit 26.

Q. It would be an amount equal to what proportion that could be held by "Exhibit 28"?

A. About three-fourths of that.

Q. About three fourths of that, of this reagent, was mixed up with the flour that went into that individual biscuit?

A. Yes, sir.

Q. That is all.

Redirect Examination

By Mr. Butler:

Q. Was this same re-agent used in the biscuit made from the unbleached flour? A. Exactly the same.

Q. Both were treated alike?

A. Yes, sir, in every respect.

Q. You told Mr. Smith that in your work in the laboratory you sometimes had bleached flour that was bleached at
1084 the mill. Some mills bleach where electricity was employed, and some where nitric acid was employed and chemicals and so forth. Have you ever observed any difference in the flour which would be attributed to the method of producing the bleaching medium, as to whether it was produced by the electric flaming arc or the nitric acid?

A. None at all, they all seem to be derived the same way.

Q. Now you also told Mr. Smith that sometimes you experimentally bleached it in the laboratory and made NO₂ gas by some salt of iron and nitric acid or something of that sort. Now in your experience with flours bleached to like degree in the laboratory to these bleached by milling methods, was there any difference observable? A. None at all.

Q. Now something was said to you about the different mills that the flour came from and so on. How are your samples identified for use in the laboratory and making of the records?

A. They have numbers given to them by the inspectors.

Q. Called Interstate numbers, I. S., number so and so?

A. Yes, certificate number so and so.

Q. And you take them by the number?

A. Yes, I get them with the number, and very often I don't know the history of the sample; sometimes I do.

Q. But the history would be derivable by tracing them from the numbers?

[Q.] Yes, the inspector can always furnish the information.

Q. With that you have nothing to do. Are some substances said to be acid and some said to be alkaline? A. Yes.

Q. Reference was made to the testimony of Dr. Marshall as to the effect upon corn starch, and my recollection is that he did not state, Mr. Smith, the amount recoverable from the acid or alkaline solution. You read something to him from a paper and he said he would affirm that you are right if it was an official record, and you said that you couldn't tell whether it was or not. I think that is the exact state of the record upon that point.

1085 Mr. Scarritt: A copy of his testimony.

Mr. Butler: Mr. Smith said that it purported to be from the testimony.

Mr. Scarritt: Do you deny that?

Mr. Butler: No, I do not, but I don't want Mr. Marshall quoted as having said anything other than what he did say.

Judge Scarritt: We can get it certified, of course.

Mr. Butler: Mr. Smith said that he could not affirm that it was official. He said he was sure it was right if it was official, but you said you couldn't say whether it was official or not, and I have not the slightest information on that point, but I know what occurred.

Judge Scarritt: He said it was a copy of his testimony in that case.

Mr. Butler: If Mr. Smith now says that it was official, it is enough for me.

Judge Scarritt: Do you mean certified?

Mr. Smith: All I got to say is that it was furnished me by the reporter who took it down; he did not certify to it, though.

Mr. Butler: If the decimal point was in the wrong place it would vary ten times. He said if it was the official record it was right, that is what he said, and you would not say it was the official record.

By Mr. Butler: (Resuming)

Q. Now as to the degree of the tests, do I understand that the stronger the nitrites the stronger the color?

A. Yes, sir.

Q. And you say these saliva tests that you made that the color was slight?

A. So slight that I was not sure that I could see the pink.

Q. And your pupils insisted that they could not see it?

A. Yes, they didn't think it was a very satisfactory test.

Q. Didn't look much like the test with "Exhibit 30" here that came out of this bread that you made from the bleached flour that was seized and given to Dr. Hulett, did it? A. Nothing at all like it.

Q. No, did not look much like that. Now the quantities of the nitrite reacting material are measured by the color?

A. Yes, sir.

Q. Now you said that you baked bread under one of these methods in which three grams of the water was eliminated?

A. 30 grams.

Q. Now how much water was put in. I want to find out how much water stayed in when you baked it?

A. 205 cubic centimeters were put in this particular flour, that was the absorption for this particular flour, and it varies with different flours, but not a great deal.

Q. What I am trying to get at is this, that generally in baking by the domestic method the percentage of water one-tenth eliminated by the baking, roughly or approximately, it would vary in different loaves, I understand, in different flours,

but it is of some interest to know whether you baked all the water out or only part of it, and if only part of it, what part of it?

A. About 14 per cent, a little over ten per cent.

Q. About 10 per cent is baked out? A. Is baked out.

Q. So from 85 to 90 per cent of the water added to the flour remained in the bread? A. Remained in the bread.

Q. And the comparison of the measurement will be by this color method and the amount of nitrites is compared, the weight of the nitrites against the weight of the air, and the weight of the flour first, and then the weight of the air?

A. Yes, first against the bread, and then calculate to the flour that is present there.

Q. So the increase in weight of the bread by the addition of this quantity of water which remains in the bread would itself dilute, would it not, the nitrites? A. Yes, sir.

Q. So that even though there was the same, absolutely
1087 the same amount of nitrites in the bread, as there was in the flour, made from it, because of the increased part being pure salt and pure water and the other ingredients that stayed in the bread, it would make a more dilute test?

Q. Well, we take the weight of it, we take a certain weight of bread, and of course that weight of bread would not have that same weight of flour; besides the flour we would have some of these other ingredients and some water, so there would be less.

Q. After water and salt and sugar and whatever you put?

A. Yes, so that it would, as you say, really dilute it, because there would be less than that same weight of flour there.

Q. I think that is all.

Dr. S. F. Acree, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. S. F. Acree? A. Yes, sir.

Q. Where do you live? A. Baltimore.

Q. What is your occupation, profession?

A. I am associate professor of organic chemistry in John Hopkins University.

Q. And what has been your education, degrees and experience—work along the line of organic chemistry and similar subjects?

A. I graduated with the degree of Bachelor of Science in the University of Texas in 1896; I was assistant in the
1088 University of Texas in 1897 and received the degree of Master of Science. In 1898 to 1901 I was in the Uni-

versity of Chicago, doing graduate work. I was also assistant and fellow there during that time. In 1902 I received the degree of Doctor of Philosophy. From 1901 to 1904 I was associate professor of chemistry in the University of Utah. In 1903 and 1904 also, on leave of absence I was in Europe, at the University of Berlin. From 1904 up to the present time I have been connected with Johns Hopkins University.

Q. Now, what is organic chemistry?

A. Organic chemistry is that part of chemistry which has to deal with the carbon compounds. The name "organic" was given to that part of chemistry because most of its compounds were thought in earlier days to be formed by organized things such as plants, animals, by lower organism too, as far as they were known.

Q. And have you pursued the study of any other department of chemistry?

A. I was assistant city chemist in Chicago in the year 1904, part of the year. I have done work in the lines of physical chemistry and I have done some work with enzymes.

Q. Are you familiar with the substance known as NO₂ or nitrogen peroxide gas, sometimes written N₂O₄? A. I am.

Q. What is that substance?

A. It is a gas containing as chemical constituents, chemically combined, nitrogen and oxygen. The gas is heavier than air. It is a substance which is very irritating when it is inhaled. It makes one sick if he has to work with very much of it. When taken into the lungs it is a very powerful oxidizing agent. It is used in oxidation to destroy organic compounds, and it is in, for instance, concentrated nitric acid.

Q. Have you ever seen an Alsop bleacher work?

A. I have.

Q. Where.

A. At the Southwestern Milling Company in this City; the mill was called the Rex Mill, I believe.

Q. When was that? A. Last Saturday.

Q. Did you see some flour bleached right there.

A. I did.

1089 Q. Was that the occasion Professor Hulett was there?

A. It was.

Q. Referred to in his testimony? A. It was.

Q. Did you yourself make a qualitative analysis of flour that was bleached at the same time while the thing was running in the same way that it was when Professor Hutlett took some gas in a flask which he exhibited here, or like the one he exhibited here? A. I did.

Q. What amount, if any, of the nitrite reacting material was added to the flour by that particular treatment, of that dilution of the medium?

A. We collect a sample of flour that had been bleached and which was leaving the agitator and analyzed that flour, when I returned to this laboratory, and I found .6 or a milligram of nitrite reacting material expressed as nitrogen in each kilogram of flour.

Q. That would be .6. A. .6.

Q. Of a part to the million? A. Yes, sir.

Q. Of nitrite reacting material calculated as nitrogen?

A. Nitrogen.

Q. Do you know whether or not the gas generated by the flaming arc was at the time of the bleaching in question connected with more than one agitator?

A. It was connected with four.

Q. Connected with four? A. Four agitators.

Q. Now, after Dr. Hulett had taken the gas which he analyzed was there any change made in the connections of the machine to various agitators?

A. There were three of those agitators cut off, and the gas was then allowed to flow through only one of the agitators, the one nearest the point from which I took the gas.

Q. Did you yourself take some gas? A. I did.

Q. Where did you get it with respect to the place that Hulett got his? A. At the same place.

Q. Did you determine the degree of—was that while all of the gas was running into the one agitator?

A. It was.

1090 Q. Did you determine the degree of concentration of the gas mixed with the air that you took? A. I did.

Q. What was that in parts?

A. When I analyzed that gas I found in each litre of air 1.1 cubic centimeter of nitrogen peroxide.

Q. Doctor Hulett expressed the quantities he found in terms of NO₂ to the million parts of the mixture, as I take it, and he gave his determination as 300 parts to the million. Now, expressing yours in the same way what was your determination?

A. This would be then 1100 volumes of nitrogen peroxide to the million part—

(Question read by the reporter)

A. My determination was 1100 volumes of nitrogen peroxide to the million volumes of air.

Q. Can you tell us what is the first thing which takes place chemically upon the application of this Alsop bleaching medium to flour in the agitator?

A. The nitrogen peroxide combines with the mixture, to a large extent, and forms nitrous acid and nitric acid.

Q. Describe the characteristics of each.

A. The nitric acid is a very powerful chemical re-agent. It is used in concentrated form as one of our strongest oxidizing agents; when it gets on the flesh, for instance, it has a terrible action. I have seen some cases in which the concentrated acid has come on to individuals and causes a terrible swelling of the hand. I remember one case in which the nitric acid accidentally got into the mouth of an individual and it ate all of the lining of his mouth out, so that he could not take any food at all for a few days and liquid food only after that for some time; the man was in a very bad way. The nitric acid when brought into contact with organic substances such as flour, as we have here or with starch, sugar, with wood, or with any number of organic things, decomposes them very badly.

Q. Now, as to the characteristics generally of the nitrous acid.

A. The nitrous acid is, to a certain extent, an oxidizing agent. It has the acid properties of most acids, that is, 1091 when mixed with substances like sugar, for instance, it hydrolizes, that is, decomposes this, and it behaves very much like other acids; you cannot get it perhaps in as concentrated state as you do other acids.

Q. Well, does it exist of itself in solution or is it always in solution, in water?

A. It has not, as far as I know, been isolated, not mixed with anything else; as we know it ordinarily it is in solution in water.

Q. Now, patent flour being treated by this gaseous medium consisting of NO_2 , and diluted with air, are you able to tell us whether or not any chemical changes work in any of the constituents of the flour?

A. I am able to say something about that. I have made some experiments on the action of these gases and of the nitric acid formed, and other substances analogous. The nitric acid in contact with flour decomposes the flour; it generates nitrogen peroxide; it acts upon certain constituents of the flour and forms other acids. If you care for the quantitative data I can—

Q. Well, you say it acts upon certain constituents of the flour, decomposes them?

A. It acts upon the gluten, for instance, and it decomposes the starch, which is a large constituent of the flour. It furthermore acts upon the fat of the flour in that it bleaches that fat. I have here some samples.

Q. Well, as bleaching is the purpose of the treatment, let us speak of that first. Now, what effect has it upon—where is the coloring matter of the flour?

A. It is chiefly in the fat. If you extract the flour with ether, or with petroleum ether, you extract the fat, and you extract the chief part of the coloring matter.

Q. Then it acts upon the coloring matter which is not so associated with the fat?

A. Yes, and it further acts upon the fats themselves.

Q. Now have you made any demonstration of its effect upon the coloring matter and upon the fats themselves?

A. I have.

Q. How?

A. I have taken some of the fat that was extracted from unbleached flour, and I have dissolved that in chloroform.

Q. Now what flour do you characterize as unbleached flour?

A. This I will have to get that from the gentleman 1092 from whom I got the fat, Dr. Winton.

Q. From whom you got the fat or the flour?

A. Yes, sir, the fat.

Q. Now let me see; did you take the fat yourself from the flour?

A. No, I took the fat as it was given to me.

Q. Oh, yes, Dr. Winton furnished you some fat taken, as you understood, from the unbleached flour?

A. Yes, sir.

Q. Now did you have some taken from the bleached flour?

A. I myself took some fat from the bleached flour.

Q. What flour?

A. The number of the sample of the flour is I S No. 9126 B, as I understood.

Q. Did you test it to see whether it was bleached or not?

A. I did.

Q. Was it bleached flour? A. It was.

Q. Gave nitrite reaction then? A. Yes, sir.

Q. Did you make a quantitative determination to show the extent? A. No, I did not.

Q. Well, have you tested the seized flour which is here in court, by the drop test, dropping Griess re-agent on it?

A. I have.

Q. Now, how did this bleached flour that you took the fat from correspond with that, as to the degree of the nitric reacting material?

A. The unbleached flour so-called, unbleached flour, gave at most only the faintest indication of any test, whereas the bleached flour gave a very decided test by the Griess reaction.

Q. I meant to ask you concerning the bleached flour from which you extracted the fat in the experiment that we are

about to enter upon. How did the degree of bleaching in that compare with the degree of bleaching of the seized flour here in court and which you say you tested?

A. They were the same sample.

Q. Oh, it was one of these samples? A. Yes, sir.

Q. One of these samples in court, have you the exhibit number?

A. The bleached flour is I S No. 9126, that is as I understood from Dr. Winslow.

Q. But you did not get the court's numbering of it here.

1093 A. This seizure No. 13.

Q. That is exhibit?

A. Exhibit No. 13, beg pardon.

The Court: What is 13, I have forgotten?

Mr. Butler: It is a sack of this flour, the sack of bleached flour that Mr. Winslow brought up here, from Mr. Terry, under the order of the court.

The Court: Of the seized flour?

Mr. Butler: Of the seizure.

Q. Now it was that same flour. Now, have you specimens of the oil or fat of these two for comparison?

A. I have.

Q. The fat from the unbleached, furnished you by Winton, and the fat from this seizure, Exhibit 13?

A. I have them here, extracted in gasoline.

By the Court:

Q. Extracted in what?

A. In gasoline. The unbleached flour when extracted with gasoline this substance on the right, Your Honor may see and the jury, which has a yellow color; the bleached flour in gasoline gave us this one on the left, which has less color. We took—

By Mr. Butler:

Q. Just a moment. The one in your right hand I will have marked first Exhibit 43, and the one in your left hand I will mark next as Exhibit 44. Exhibit 43, as I understand you, was from unbleached flour?

A. It is, that is from unbleached flour.

Q. And Exhibit 44 is from Exhibit 13, the bleached flour, a part of the seizure in this case? A. It is.

Q. Well, did you get the unbleached flour from Dr. Winton too? A. From Dr. Winslow.

Q. Dr. Winslow. What is the I S number on that?

A. The unbleached flour is I S No. 9127 B.

Q. That is the diluted flour Exhibit 12?

A. Exhibit 12.

Q. Made by the same mill and testified to by Mr. Leflang, as you recall?

The Court: That came from the Lexington Mill?

Mr. Butler: It was a part of the flour that was sent.

The Court: As a substitution to this grocer down at Castle?

1094 Mr. Butler: Yes.

Mr. Butler: Exhibits 43 and 44 are offered in evidence.

Mr. Smith: I have no objection.

By Mr. Butler:

Q. 44 is the unbleached, isn't it? When was this flour put in the gasoline? A. This morning.

Q. And is there anything else to the test except the putting of the flour into the gasoline?

A. That is all; the vessels were carefully cleaned; they were shaken thoroughly to get the fat extracted from it.

Q. And what was the gasoline added to the flour for?

A. The gasoline extracts the fat from the flour, and of course the coloring matter.

Q. And the coloring matter, the fat and all, rises into the gasoline?

A. To the gasoline.

Q. And in that way to some extent, at least, the solution gasoline containing the fat indicates the degree of attack upon the coloring matter of the oil? A. It does.

Q. Now you said also that nitric acid acted upon the fats; this determination is distinguished from the coloring matter of the fat?

A. The fats are readily decomposed by all acids in the presence of water, the water itself entering into combinations with the fat and forming glycerine, palmitic acid, stearic acid and oleic acid, when it went into decomposition. Furthermore the nitric acid acts as an oxidizing agent, destroying the oleic in another manner which I do not intend to enter into here; it would be rather too complicated I think.

Q. Well, now, can you tell us definitely, have you any experimental proof or demonstration that HNO_3 , the nitric acid, acts upon the substance of the fat as distinguished from the color? A. No, I have no experiments myself.

Q. Now, as to the degree of chemical change worked in the oil itself or the fat, on what does that depend?

1095 A. The degree of that change would depend upon the amount of nitric acid; however, speaking now of that

one reaction, the reaction of nitric acid, it would depend upon the amount there, all other things being equal.

Q. And the character of the substance produced by the nitric acid?

A. The nitric in decomposing these fats would produce nitrogen peroxide and nitrous acid, palmitic, stearic and oleic acid, when we subject the nitrogen peroxide to the same reaction this chemical action would be possible.

Q. Are these substances which could be produced by nitric acid in the oil a nutritive substance, an improvement upon it as it was, or an injury to it?

A. Well, I should say from my experience that the nitrogen peroxide from breathing it, and so forth, that it would be a deleterious substance. I certainly should not want to take the nitrous acid into my system if I could prevent it. The fats are of far more nutritive value than the palmitic, oleic and stearic acids, so that I think any amount of decomposition would be deleterious.

Q. So, then, it has the effect of changing this to acids?

A. Yes.

Q. Of the kind that you describe. Now, what effect has the bleaching upon the gluten of the flour?

A. The nitric acid decomposes gluten into simpler constituents which are generally known among chemists as amino compounds in general, which decompose, forming acids, for instance, I have some experiments on that if you wish to see—

Q. Now, which acid decomposes the groups in the gluten?

A. Nitric acid will decompose them, nitrous acid will decompose them, and the nitrogen peroxide will act upon them, change them into other substances.

Q. Now you may describe that.

A. To see whether or not nitric acid will decompose dried flour, that is, flour containing nitric acid, just as a sample of bleached flour contains nitric acid, I made such a sample by spraying a very small amount of nitric acid into some 1096 dried flour. I want your Honor's attention so that you can see that. I took a sample of dried unbleached flour, and, as I say, sprayed the nitric acid into that in the concentration represented by hundred cubic centimeters of nitrogen peroxide per kilogram of flour; that flour was bleached at once; I have the two samples here, Mr. Butler.

Q. Yes, we will mark them. A. All right, sir.

Q. Give me the unbleached first, the one that you did not treat?

(The specimens referred to by the witness were respectively marked "Government's Exhibit 45" and "Government's Exhibit 46".)

A. I was not quite finished, if you please, Mr. Butler.

Q. Exhibit 45 and Exhibit 46 are the specimens of flour to which you were referring when I interrupted you for the purpose of marking the exhibits. Now, hereafter please refer to that by exhibit number, and state what Exhibit 45 is, whether the bleached or unbleached?

A. The Exhibit 45 is the unbleached flour.

Q. That has been treated by nitric acid? A. No.

Q. Now, what is 46?

A. I had not quite finished. As I started to say—

Q. Go on.

A. I treated flour not only with one hundred cubic centimeters or with nitric acid corresponding to hundred cubic centimeters of nitrogen peroxide per kilogram of flour, but I treated it with a very much smaller amount, namely, 33 cubic centimeters of nitrogen peroxide per kilogram of flour, expressed of course as I say here, in nitric acid, that is, I put nitric acid in here corresponding to 33 cubic centimeters of nitrogen peroxide per kilogram of flour. The flour was bleached by this smaller amount of nitric acid as well as the larger amount.

Q. Now, Exhibit 45 shows the flour before the treatment by the nitric acid? A. It does.

Q. And Exhibit 46 shows it after? A. It does.

Q. The treatment by nitric acid and in those particular specimens that you have there, the amount of nitric acid was one hundred cubic centimeters NO₂ per kilo?

A. In this sample it is 33.

1097 Q. It is 33 in that sample? A. Yes, sir.

Q. The lesser amount.

Mr. Butler: Exhibit 45 and Exhibit 46 are offered in evidence.

Mr. Smith: No objection.

Q. Now how did you demonstrate, if you did demonstrate, that the chemical action took place.

A. In the experiment with the nitric acid corresponding to 100 cubic centimeters of nitrogen peroxide per kilogram of flour, the temperature rose four and one-half degrees Fahrenheit. This is proof of the chemical reaction. In general chemical reactions are associated with the formation of heat. The nitric acid combined partly with the flour and partly acted upon the flour. I was able to prove that by treating this sample of flour with water to extract any free nitric acid in there. The free nitric acid would dissolve at once in the water. When I analyzed that solution the results show that 40 per cent of this nitric acid had acted upon or combined with, the flour.

Q. How did you get at that?

A. It is necessary only to titrate the nitric acid with a standard solution of alkali. The alkali corresponds per cubic centimeter to so much nitric acid. It is a simple mathematical calculation then, to determine how much nitric acid you had in there. I might say that in the dry flour itself very much more than this 40 per cent of the nitric acid was combined with the flour because the addition of water caused the nitric acid not to combine with the flour so much.

Q. What was the character of the product of the chemical action?

A. There are, in the first place, acids formed by the action of this nitric acid on the flour. It generates more acids, for instance $36\frac{1}{2}$ grams of this flour generated in two days acid equal to .073 cubic centimeters of 0.2 normal sodium hydroxid.

Q. Well, aside from the production of acids anything else?

A. There are nitrogen peroxide fumes, the gas, the nitrogen peroxide is formed.

Q. That is the same gas that the Alsop bleacher has?

1098 A. It is.

Q. What else, if anything?

A. I believe that those are the end of the experiments that I have at that point.

Q. Now, what further effect, if any, have you observed upon the flour or any of its ingredients of nitric acid?

A. The nitric acid in combination with the nitrous acid brings about some further decompositions of the proteid constituents. We have shown that the nitric acid decomposes part of the flour and forms more acids. These acids are as we have shown, partly so-called amino acids; they are derivative of nitrogen. Now, when these acids are formed the nitrous acid acts upon this and decomposes this further. I have experiments on that. Do you wish them?

Q. Yes, sir.

A. I decomposed to some extent some flour with some nitric acid and I then added some nitrous acid to see whether or not the nitrous acid would act upon these amino compounds, the nitrous acid, as we have shown, decomposed the dried flour just exactly as we have it taking place in these samples. I proved that the nitrous acid does act upon these constituents and if, of course, decomposed in that action. Then I added the .0085 milligrams of N_2O_3 , that is nitrous acid expressed as N_2O_3 ; in a very few minutes I analyzed the solution, and I found that only the .0011 milligram of N_2O_3 was left; that means that $7/8$ th, or say roughly 85 per cent of that nitrous acid present there as you can see in very small quantity, had been decomposed, and it decomposed the corresponding amount of these other products.

Q. What did they produce?

A. They produced first nitroso compounds, next diazo compounds, and finally hydroxy acids when they act upon the amino acids.

Q. Nitroso compounds, diazo compounds and what else?

A. And hydroxy acids.

Q. What are the characteristics of these compounds of acids? A. Nitroso, you mean nitroso compounds?

Q. Yes.

A. Nitroso compounds are in general, that is, the nitroso compounds of these derivatives I am speaking of, are 1099 in general very unstable substances, they decompose of themselves, they would in some cases yield oxides of nitrogen, also nitrogen in some cases, and they could act upon other substances around them decomposing those. The nitroso compounds that I have worked with are analogous ones, if I may give those. Those are poisonous substances; they often affect the skin, if they get on the skin they raise blisters; if you breathe these compounds, if they happen to be volatile, and you breathe them two or three days your lungs will be sore and one becomes nauseated. I might say that we have worked with these compounds, analogous to the ones that I am speaking of here, in my laboratory, and not only have we observed ill effects like that, but other people working with them and describing them in literature have also warned others against the ill effects of these nitroso compounds.

Q. Now, in the bleaching of flour by means of this Alsop process, can you tell us whether or not, in your opinion, these nitrous compounds are produced in the flour as a result of the bleaching?

A. I should say, that they most certainly are; it would be practically impossible to keep from forming them. It is a general truth in chemistry that if you bring together two kinds of compounds which react with each other, under any circumstances they are going to react. All we can do is to bring them together, and then the laws of chemistry make the rest follow. You can not keep them from doing that if you bring them together.

Q. And also as to whether or not this bleaching process results in the production of diazo compounds and hydroxy acids that you have spoken of? A. I say, beyond any question.

Q. Now, can you describe the characteristics as to injuriousness or poisonousness of diazo compounds?

A. I have worked with some of those and the substances are harmful in their action on human beings. Some of our men are working with these diazo compounds; they have been made sick in handling them, have to quit work for two or 1100 three days, and other people in working on these have noticed the same thing; others have warned fellow chem-

ists against breathing them and allowing them to act upon them.

Q. Now how long does the chemical action of the bleaching medium continue to go on in bleached flour bleached by the Alsop process?

A. It would continue to go on as long as you have any of this nitrogen peroxide or any of this nitrous acid or nitric acid in the flour, and as long as that—

Q. Will it go on as long as the flour continues to show the nitrite test on the application of the Griess re-agent?

A. It would, it would act upon it as long as there is any of that gas and as long as there is any acid substance—any of the substances there.

Q. Can you [complain] to us so we may understand it, how that may be, how this flour, for example, is still undergoing chemical changes as the result of the Alsop process?

A. The nitrogen peroxide is in there partly as a gas; I have myself proven that by getting the gas out of the bleached flour. If I may use the board I can illustrate how that is done.

Q. You say NO_2 , the gas, the very bleaching gas itself is still in this flour that was seized? A. It is.

Q. Well, how do you know that? How do you know it is there as a gas, is what I am trying to get at? You want a piece of chalk? A. Yes.

Q. Well, take this big pad and a heavy pencil, perhaps you can do that, hold it up in your hand; can't you hold it up?

A. Yes, sir, I will draw it first, then I will. We have a well known method of determining whether or not there is a gas in a solid or a liquid, which gas can escape; or whether the gas is mixed in the air with the solid itself, or in a liquid, so it can escape. All we have to do is to put that substance, say the flour, into a glass vessel which has a cover fitting tightly, and then put above that, on a tripod, a vessel containing a substance like sodium hydroxid solution, or solid sodium hydroxid itself, which can take up all gases which would come away from this flour. Now, if there is any gas mixed

1101 in with the particles of the flour that gas will gradually diffuse into this space and be dissolved in this alkaline liquid, and it is absolutely impossible for any of the flour or any particles to get up in there. The flour does not rise, of course, but if this gas is going to diffuse out through the solids, or the liquids, and through the air, and be dissolved in this alkaline liquid, you can afterwards examine that liquid to see whether or not the gas nitrogen peroxide, has been in the flour. Now, I have tested various samples of flour that are bleached, or have been bleached, and I have proved that they have always contained nitrogen peroxide gas as such in the flour, and in the air mixed with the flour. A little of the gas gradually

diffuses out and gets into this liquid when you arrange the experiment in this way; I might say that this is a well known method of determining such questions, or whether there is any such gas.

Q. Now, assuming the chemical changes which you have described, this decomposition, when does it commence to take place after the bleaching?

A. It would begin to take place the moment the gas is introduced into the flour.

Q. And continue as long as it remains there?

A. It would.

Q. What effect would the flour to make dough, the making of bread and the application of heat have upon these chemical changes?

A. When you add water to the flour the nitrogen peroxide combines partly with that water; it has already combined partly with the water in the flour; you have then nitrous and nitric acids in that water, and I have shown myself that the nitric acid, for instance begins at once to decompose some constituents of the flour; all we have to do is to mix the water with the bleached flour and form a mixture and the reactions begin.

Q. Now, as to the application of heat?

A. It is generally well known is chemistry and it is one of the fundamental laws, that in general the higher the temperature the faster reactions take place. And they take place, roughly, twice as rapidly for each rise of ten degrees in temperature. I made a little calculation to see, roughly,
1102 how many times as rapidly this reaction will take place.

For instance the reaction of nitric acid will take place faster at a higher temperature. If you were to bake bread at 200 degrees centigrade the nitric acid would react approximately two hundred and fifty thousand times as rapidly as it would at the ordinary temperature that we have around. So that rapidity of that reaction may sound astounding, but it is well known; we have all worked out so many similar reactions that there can be hardly any question.

Q. Now, as to the amount of chemical change from a relatively minute quantity of these acids, nitric and nitrous acid. I want to get at it, do those acids combine directly and just once, and is that the end of the job, or is there a chemical process by which they continue to act during a relatively long period of time, while the nitrogen peroxide gas remains in the flour?

A. The action goes on continually. When the nitric acid and the nitrous acid are formed their action does not stop there. Now, as I have said, the nitric acid begins to form nitrogen peroxide that in turns re-acts with water again,

forms more nitric acid, and then again. Furthermore, I might say that we have carried out some experiments to prove our reactions must be very similar; they may be going around in a circle, as you might say, the nitric acid first acts upon, for instance, the gluten, and forms this gas; then that in turn acts upon the water and forms more nitric acid, and so it goes around. And there is another phase about that: the nitric acid may act upon certain constituents there and form compounds, which in turn can act upon the gluten and form much more nitrogen peroxide than corresponded to the amount present originally.

Q. What substance does that?

A. Well, for instance, nitro-starch sets upon flour and forms a great many times as much nitrogen peroxide as could possibly come from the nitro starch itself.

Q. Does this nitrogen peroxide which is the result of decomposition in the flour, continue to work as the nitrogen peroxide which was made by Alsop's machine and put into the flour? A. Would it act as such?

1103 Q. Yes, well, I don't care whether as such, whether directly or indirectly?

A. Yes, sir, that gas would keep on acting in the way I have described here, first would act upon the water, the nitric acid there would act upon other constituents and form more nitrogen peroxide, and so that would go on around. I could show it on bread there. As I said, some of these constituents form and act upon the proteids, for instance, of the flour, and form more nitrogen peroxide than corresponds to the amount that you take at first. Now, that is for this reason. These proteids contain nitrogen, and we have the air, and the air and the nitrogen of the proteids are both involved in these reactions, so that in these reactions we really make the air itself, oxidize the nitrogen of these proteids; the result is that we have more and more of this formed. Of course, these reactions are also complicated with others, and one other that I should like to speak of is this: the nitrous acid itself removes certain ones of those things formed, otherwise the reaction would go on for an indefinite number of times.

Q. What effects do the reactions produced by the Alsop process of bleaching have upon the protein and other valuable food ingredients of the flour or constituents of it?

A. They decompose these proteids fairly rapidly. I have an experiment here which will show that the nitrogen peroxide and the nitric acid and the nitrous acid all combined will tend to decompose these proteids, and I can give one experiment if you wish.

Q. Yes, sir.

A. I mean of nitric acid. I should like to recall the fact that in one experiment we added a small amount of nitric acid corresponding to one hundred cubic centimeters of nitrogen peroxide per kilogram of flour. Now, this mixture was perfectly dry, just looked like an ordinary bleached flour; that was allowed to stand in one of the glass apparatus, this one that I described, and we determined whether or not any nitrogen peroxide, for instance, were formed in that experiment. The liquid above, in this place, collected nitrite, I might say, nitrite reacting material corresponding to .032 cubic centimeters of nitrogen peroxide as N_2O_4 . 36½ grams of this flour was used. Now, this reaction, of course, does not stop there; the nitrogen peroxide, as I have said, acts in turn upon the water and forms more nitric acid, and then would begin to go all over again. That principle is called in chemistry catalytic reaction, or the process is called catalysis. We mean by that this: That the substance can, in many cases, decompose much more of the substance than corresponds to this amount, I should like to recall one experiment, which is well known in chemistry, in which, for instance, Thompson and O'Sullivan show that one part of diastase acid can decompose one hundred thousand parts of cane sugar and still be just as active as it was originally, ready to decompose many more times than one hundred thousand parts of sugar. Now, it is a well known fact, one which a number of us interested in catalysis have proven in other cases, and that is why I say the action of the nitrogen peroxide or of the nitric acid does not stop when you bring that into the flour.

(Recess until 2 o'clock p. m.)

Tuesday Afternoon, June 14, 1910.

Pursuant to adjournment, Court met at two o'clock p. m., Tuesday, June 14, 1910, and proceeded with the trial of said cause further as follows:

Mr. Butler: The gentlemen on the other side have consented that I may call Dr. Stengel at this point.

The Court: Very well.

Alfred Stengel, called as a witness on behalf of the government, being first duly sworn, was examined by Mr. Butler, and testified as follows:

Direct Examination.

Q. Alfred Stengel? A. That's right.

Q. Where do you live, Mr. Stengel? A. Philadelphia.

Q. And what is your profession?

A. I am a physician.

Q. I would like to have you state to the court and jury, fully, your education, special training along particular lines, and professional experience, and work, so as to indicate your qualifications as a witness, touching the technical matters about which I will ask you, later on.

A. I am a medical graduate of the University of Pennsylvania, graduating in 1889. Thereafter, I have been connected with various hospitals of Philadelphia, in capacities of pathologist and physician. For several years I was pathologist to the German Hospital, and the Philadelphia Hospital, and since that time, practically the last fifteen or more years, I have been physician to several of the hospitals, there, including the Howard Hospital, the Philadelphia Hospital, the Pennsylvania Hospital, the Children's Hospital, the University Hospital, and I am now connected with the Pennsylvania, Philadelphia, and University Hospitals as physician. I gave my time very largely, in the earlier years to the study of pathology, and published a text book on that subject. I have, since 1898, been Professor of Clinical Medicine in the University of Pennsylvania, and was, for a time, connected, also, in a similar capacity, with another medical school, the Women's Medical College. I have contributed articles on pathological subjects, in recent years, more particularly on medical subjects. I have contributed, specifically, to Keating's Encyclopedia of the Diseases of Children; Osler's Encyclopedia of Medicine, and was the general editor of the Millenockle's Encyclopedia of Medicine, which was translated from the German, and published in English. For a time, I was the editor of the American Journal, of the Medical Sciences, and I have
1106 been connected with various medical associations, including the Association of American Physicians, the American Medical Association, the Society of Pathologists, and Bacteriologists, and a number of other more local medical organizations.

Q. And you are engaged in the practice of your profession generally, in Philadelphia? A. I am.

Q. And also engaged in teaching there?

A. I am still Professor of Clinical Medicine, in the University of Pennsylvania, and engaged in private practice, there.

Q. Doctor, this is a case of the government against a shipment of flour, seized on the charge that it was adulterated, and, for the purposes of your opinion, you may assume that the flour seized was treated by a process known as the Alsop process, which generated nitrogen peroxide gas, and, after the same was mixed with air, it was brought into intimate contact with the flour, in a state of agitation, sufficiently to substantially bleach and whiten the flour, and that, by the

process, the flour was so affected that it gives reaction for nitrite reacting material, upon its being tested by means of the Griess-Illosvay test. I want to ask you whether or not such treatment, in your opinion, added a substance or substances to the flour? A. It would.

Q. And, the character of such substances.

A. It would add nitrous and nitric acids.

Q. And the effect of each, as to whether it is poisonous, or deleterious, or both.

A. Both are poisonous and deleterious **substances**.

Q. You may further assume that bread and other food made from this flour will contain nitrite reacting material, which will be disclosed by applications of the Griess-Illosvay test, and I want, upon that state of facts, to have your opinion as to whether or not such food would be injurious to health.

A. I think it would.

1107 Q. Will you give us the reasons, or consideration upon which that opinion is based?

A. My reasons would be that the addition to flour of nitrite reacting substances, and the poisons of those nitrite reacting substances still in the bread made from that flour, and these substances being poisonous and deleterious, the bread resulting from the making from that flour would be injurious to health.

Q. Now, as respects the degree of injury resulting from the use of the flour, or of the bread, containing this nitrite reacting material, or the degree of injuriousness of such food, upon what would that depend, please?

A. That would, of course, depend upon the quantity of the nitrite reacting substances. If present in very large quantity, the flour, or bread, would be decidedly injurious. If present in very small quantity, it might require a longer time to manifest any injurious effects, and these injurious effects might, of course, not be very obvious immediately after, or, even, some time after consuming such material.

Q. Now, how does the injury take place, upon the consumption of bread containing such nitrite reacting material? What physiological action, or chemical change is worked in the body?

A. Well, we know that nitrites have a certain effect upon the body, that are harmful. In the first place, the nitrites have a decidedly injurious effect on the blood, so altering the blood that it becomes incapable, to the extent to which it is altered, of carrying on its proper functions. If a very over-whelming dose of nitrites were taken, the change of the blood, together with other changes, that I shall mention, might be rapidly destructive of life. In very small quantity, then, the effect would, of course, be proportionally less. This change

in the blood is a well known one, which consists in so altering the coloring matter of the blood—the hemoglobin, as it is called—that it is not any longer capable of carrying oxygen—that is, carrying on the important function of the blood, which enables us to breath in air, and exhale carbonic acid gas, and go on living. That is the first, and perhaps most important effect of nitrites. A second effect, of importance, is that on the circulation of the blood. Nitrites, all of them, are powerful depressants to the circulation, and lower blood pressure and injure health by interfering with proper circulation of the blood. A third effect of nitrites is one which is exercised on muscular tissues, the walls of blood vessels, the walls of the heart, muscular tissues generally, are destructively affected by nitrite poisoning. Fourth, the effect of nitrites upon digestion is injurious, in the possibility of irritating the stomach and intestinal tract, and interfering with digestive processes. Now, these are the four ways which nitrites, in quantities sufficient to make their effects manifest, influence the body to the disadvantage of health. If the quantity of nitrites be reduced to a minimum, so small a quantity as even beyond the reach of chemical detection, the effect would be correspondingly diminished. The effects, however, of nitrites, in any quantity, I believe are in the same direction, and deleterious.

Q. What, as respects health, is the necessary or inevitable tendency of eating of bread containing this nitrite reacting material, made from this seized flour.

A. The effect would be to the detriment of health.

Q. Now, I am not sure that I caught, as you stated, the four considerations upon which that opinion rests. One is the change of the hemoglobin of the blood to met-hemoglobin, destroying the oxygen-carrying power of the hemoglobin, and, two, is the tendency to depress blood pressure.

A. To depress the circulation generally.

Q. And, three, impairs digestibility?

A. Three, I said was the effect upon muscular tissues.

Q. How does the effect upon muscular tissue occur?

A. By direct action. I wish to add that, possibly, also, by the interference with oxidation that occurs, because the hemoglobin of the blood has been converted into met-hemoglobin, which is not able to carry oxygen, and, that is usable oxygen, and consequently the muscular tissues are deprived of oxygen, and undergo degenerative changes.

Q. Now, if it be assumed that nitrites, or nitrite reacting material, of substantially the same sort as found in this flour

and the bread made from it, be contained, we will say, in the atmosphere, and in vegetable food of plants; in the saliva of human beings, in greater or less quantities, as compared with the amount found in the bread made from this bleached flour, would that, in any degree, change your conclusions as to the effects of the use of the bread containing the nitrite reacting material? A. Not in the least.

Q. Does the human system develop any means of defense or toleration against these nitrites, or this nitrite reacting material, by reason of customary use, or anything of that kind?

A. It does not. It has no defense against this particular kind of poison.

Q. Now, to make that perfectly clear, are there some substances that the human system does have means to defend against, and for which it acquires a kind of toleration?

A. Yes. There are certain substances for which the human body has means of defense, by which these poisons are neutralized to a certain extent, and, sometimes, completely, within the body. Those are well known detoxicating mechanisms, or processes, as they are called—that is, detoxicating, because these processes destroy the poison. Certain substances which the body is in the habit of receiving, perhaps or, frequently received, are thus neutralized. In the case of nitrites, there is no process of that kind. It is true that, if nitrites, taken as nitrous acid, were combined with some basic substance, a soda, for example, and a nitrite of soda were made, that there would be a poison produced which, weight for weight, would be a little less destructive than the first one, but there is—

Q. (Interrupting) But it would be, on account of the addition of the sodium to the molecule?

1110 A. Because of the addition to the sodium. But, there is no defensive mechanism to detoxicate nitrites.

Q. Then, are the nitrites which are found in the air, and in vegetables, if they are found, and smoked meats, if they are so found, and in the saliva, if they are so found, injurious to health too?

A. They are poisonous, and, ingested into the stomach, would have the same effect that nitrites in bread would have. The only difference that is to be made is that, so far as the atmospheric air is concerned, of course, that is taken mainly into the lungs, breathed in. Some of it might, of course, be swallowed because the air, coming in contact with the moisture of the nose and throat, would become mixed with that, and might be swallowed; but being taken into the lungs, absorption of nitrogen oxide, that way, would not be so likely to occur, as from the smoke.

Q. Now, if it be assumed that the effect of eating this bleached flour bread may not be observable by the most skill-

ful diagnostician, as manifesting itself by symptoms, or illness, or anything of that sort, would that, in any degree, whatever, tend to change your views, or negative the conclusion which you have given us, to the effect that nitrite reacting material in this bread, made from this flour, is injurious to health?

A. It would not alter my view, for this reason, that, if quantities of nitrites, infinitesimally small, are taken into the body, it is not to be expected that the effects of those are going to be manifest, like the effects of large quantities just the same as a person, for example, who lives in a room which is covered with green wall paper, containing arsenic, might not show any immediate effects of the arsenic poison, but, after a long period of time, might grow unaccountably ill, and the effects be produced by the daily inhalation of a little arsenic. Just so, in the case of nitrites.

Q. You may tell us, whether or not it is generally true that the use of food adulterated by the addition of minute quantities of poisonous or deleterious substances, shows, by
1111 symptoms, or immediate change in apparent well-being, the fact that the food is adulterated and injurious.

A. No. Read the first part of that?

(Question read by the reporter).

A. No. If minute quantities of poisons were added to food, the effects of those poisons might not be at all manifest, immediately after eating that food, or even after some repetitions of the eating of that food.

Q. Well, in the case of these nitrites in the bread, is it known, with certainty, that injurious effects follow the eating of the bread?

A. Because the nitrite bodies are poisonous, they have an effect upon the system which is certain. There is no mechanism by which that effect can be obviated. Therefore, the effects are certain to occur. If they are in such small quantities each time, that you cannot see the effects of summation, the addition of one dose after the other, easily conceivable, brings about deleterious effects. For example, when nitrites are permitted to gain access to the circulation, they inevitably destroy a certain quantity of hemoglobin. That is, a chemical reaction, as sure as the chemical reactions, that are performed in test tubes, by the chemists. That hemoglobin is destroyed. The body has to make that up, and if you give a big enough dose, at one time, the body will not be able to diet it. If you would give smaller doses, the body may be able to make it up, but there is a limit, beyond which the capacity of repairing, daily, small damages, cannot go.

Q. Now, if it be assumed that the injurious effects of bleached flour bread cannot be proved by experiments, does

that fact tend to prove that no injurious effects do result from eating of such bleached flour bread?

A. No, it does not. That would not disprove the fact, for this reason—to prove that infinitesimally small quantities of a poison taken daily are damaging, in the long run, is an experiment, the difficulties of which must be very apparent. It

may take a long time. It may take years, to bring about
1112 effects. In the meantime, it is impossible to conduct an experiment, and keep a human being, or an animal, for that matter, under certain conditions, to prevent outside injuries, long enough to prove it. Therefore, in my opinion, it would be practically impossible to prove directly, by experiments, that, in very minute quantities, this poison, or other poisons, are capable, in the end, of bringing about certain deleterious results, but, in the meantime, if the same effects are producible from small, as from large doses, of a poison, the conclusion is undoubted that the effect is a deleterious one.

Q. Now, you may tell us whether or not it is generally recognized in your profession that poisonous substances taken with food are injurious to health, even in the absence of experimental proof that the very poisonous substances, or any specific instances produce poisonous results, or results injurious to health.

A. The fact that a substance is a poison, and has certain definitely known poisonous, injurious effects, is, of itself, sufficient to bar that substance from the daily use as a food, or the frequent use, in any way, even in small quantities, unless it be known that there are defensive mechanisms, or ways that the body has of protecting itself against small quantities.

Mr. Butler: I think that will be all.

Cross-Examination

By Mr. Smith:

Q. Doctor, I believe you are a practicing physician in Philadelphia. A. I am.

Q. And have been for many years?

A. Since 1889, twenty-one years.

Q. Do you make a specialty of any particular diseases?

A. No. I am a specialist, if you could call it so, in internal medicine.

Q. Well, you have made somewhat of a specialty of the
1113 study of diseases of the stomach, haven't you?

A. I have, in as far as that is a part of internal medicine, yes.

Q. That would include the study of the stomach, and its condition, from the standpoint of its ability to digest food, and its general condition, would it not? A. Yes.

Q. That brings you somewhat closely in touch with the subject of foods? A. Somewhat, yes.

Q. And, what particular articles of food are injurious, and what are not? A. Yes.

Q. And, in dealing with your patients, you have had to consider the question as to whether certain conditions have been brought about by the foods that they eat? A. Yes.

Q. Now, when you speak of a deleterious food product, what do you mean by that?

A. A deleterious food product would be a food product capable of damaging health of the individual.

Q. One which would lead to a diseased or disordered condition of the stomach? A. Yes.

Q. And, when you speak of poisons, what do you mean?

A. I mean one in which damage was done to the individual, by some substance which could be designated as a poison.

Q. Where damage had been done by reason of some substance taken into the system? A. Yes.

Q. Now, is it true, or not, that in medicine we find a good many substances which, if taken in sufficient concentration, and sufficient amounts, may produce injury, but, if taken in more diluted form, or, in much less quantity, or concentration, produce either negative results, or beneficial results? Is that true, or not? A. That is true, yes.

Q. Then, there are many substances which, if you took it in sufficient concentration, sufficient amounts, would produce injury, but, if you take it in diluted form, such less amounts may produce beneficial results?

A. Well, I did not say "many", and I do not say "few".

1114 Q. Well, "some", without playing on the word "many", or "few". A. Yes.

Q. There are some? A. Yes.

Q. Take, for instance, benzoic acid. If I take a sufficient quantity of that, it will kill me, won't it?

A. Yes, I suppose it would.

Q. It would be denominated a poison, wouldn't it?

A. Yes.

Q. And yet, benzoic acid is a natural constituent of cranberries, is it not? A. I believe so.

Q. You would not condemn the eating of cranberries, simply because they contain some benzoic acid, would you?

A. No.

Q. But, as you say, if I would take a sufficient amount of benzoic acid, at a time, it would kill me?

A. If you took enough.

Q. But, as I get it in the form of food, cranberries, it is in such diluted form, and small amount, that, instead of it being injurious, it is really beneficial, isn't it?

A. Well, I do not know about that.

Q. Well, you would not say it is injurious for me to eat cranberries? A. Well, I did not say that.

Q. Now, acetic acid. If I would take that in sufficient amount, sufficiently concentrated form, that would kill me?

A. Yes.

Q. And would be regarded as a poison? A. It would.

Q. And yet, acetic acid is a natural constituent of pure apple cider, isn't it? A. Yes.

Q. Well, you would not condemn the apple cider just because it contains some acetic acid, would you?

A. Not unless it contained too much.

Q. Contained in lesser amount, apple cider is all right, isn't it? A. Yes.

1115 Q. And the acetic acid comes under the definition of a poison, as you gave it, doesn't it?

A. Yes. I think you could call it a poison.

Q. Now, if I take a sufficient amount of hydrochloric acid, into my stomach, it will kill me, won't it? A. Yes.

Q. It is a very poisonous substance, isn't it? A. Yes.

Q. And, yet the stomach secretes hydrochloric acid every day, doesn't it? A. Yes.

Q. And if I took in one dose the amount which the stomach would secrete in a day, if I took it all at once, it would kill me? A. I would have to stop to calculate that.

Q. Well, if I took in one dose, the amount of hydrochloric acid which the stomach would secrete in three or four days, it would kill me, wouldn't it?

A. Some number of days, yes.

Q. But as a matter of fact, the stomach is secreting the hydrochloric acid all the time, isn't it? A. Yes.

Q. And it is an essential? A. Absolutely.

Q. In the human economy, isn't it? A. Yes.

Q. So, there are a good many things, that way—there are a number of things which, if I took it as a dose, and in concentrated form, it would produce great injury, but, if taken in diluted form, it is beneficial, isn't it?

A. Some of them, yes.

Q. Now, it has been referred to here, a number of times,—nicotine. If I took that, in concentrated form, it would kill me, wouldn't it? A. Yes.

Q. And I would not have to take very much of it, either, would I? A. Not very much.

Q. And yet, you do not say that the nicotine which I take when I smoke a cigar, is producing any injurious results, do you? A. I think it is.

Q. You think so? A. Yes.

Q. You think that, when I take tobacco in any form, that I am introducing into my system a poisonous substance, which is injurious to my health? A. Yes, I think so.

1116 Q. Irrespective of the amount?

A. Well, yes, irrespective of the amount. It is a harmful substance, always.

Q. Of course, it could be so minute, I suppose, that you could not tell you got any, at all, but, as I understand it, your view is, that, by the taking of tobacco in any form, you introduce into the system a certain amount of nicotine, which you say is injurious to health? A. Yes.

Q. And you reach that conclusion, because you say that if I take enough nicotine it will kill me, therefore, if I smoke a cigar, it is shortening my life, and injuring my health?

A. Not exactly. You misunderstood me. The difference between nicotine, and hydrochloric acid, or benzoic acid, for example is, that there is no way that the body has of defending itself against nicotine poison, and there is a way that the body has of defending itself against a reasonable quantity of benzoic acid, and hydrochloric acid.

Q. But nature has no way of defending herself against nicotine? A. No way, at all.

Q. Then, it must be that, no matter how small the nicotine I take, when I smoke a cigar, or otherwise, it is injuring my health to that extent? A. To that extent.

Q. And, by parity of reasoning, you would claim that, no matter how small the nitrites I take in my system, it is injurious to some extent? A. It is injurious to health.

Q. You reason the nitrites the same as you reason the nicotine. Nature has no defense against either one? A. No.

Q. Then, how do you account for the fact that many people who are such constant users of tobacco, live to such a ripe old age? Do you think their age has been shortened by the use of the tobacco?

A. I am not sure about that. That is where the difficulty comes, of trying to perform an experiment upon one human being, with minute quantities.

Q. Well, let us take your judgment. Now, as a doctor who has given this matter considerable study, I think, do you say that the lives of individuals who use tobacco, and use it constantly that their lives, and their health is impaired, and shortened, by reason of that?

A. I did not say impaired and shortened. I did not say anything about life. I said deleterious effects upon the body. You might go on and live just as many years, but you might go on living in an impaired state of health.

Q. But you think that the use of tobacco by those old people, that it has been injurious to their health?

A. You mean, old people who have taken it regularly?

Q. Yes, sir, I mean those people who have used tobacco all their life. Do you think that has injured their health?

A. I think so, to some extent.

Q. And it is on the same parity of reasoning, you say, that taking anything into the system which contains nitrites, impairs the health, to that extent? A. No.

Q. Well, I thought you said nicotine taken into the system that nature had no way to defend against it.

A. Oh, you are speaking now, particularly of nicotine? Nicotine and nitrites, I would reason about those poisons, in the same way.

Q. You know, as a matter of fact, that nitrites are present, in more or less degree, in the air we breathe, don't you?

A. Yes.

Q. And, of course, by inhaling it in the lungs, I have got to take in some amount of that, haven't I?

A. Yes, with this explanation, that I made in answer to the question asked me by the attorney on the other side, that, inhaling nitrites into the lungs, they are not absorbed in
1118 anything like the quantity that the same amount of nitrites, swallowed into the stomach, would be absorbed.

Q. It would reach the circulation sooner, would it not?

A. No.

Q. If I inhale it, in the form of atmosphere, doesn't it reach the circulation sooner than if I take it into my stomach?

A. If it gets in.

Q. Well, let us take something that goes by way of the stomach. Now, you know specifically, do you not, that that is present practically all the time, in all people, in the human saliva?

A. That has been denied by some people, and asserted by some others.

Q. Now, I am not discussing the question as to whether it is a constituent element of normal saliva, as it comes from the glands, but as it is swallowed into the stomach.

A. Yes, I have heard that denied.

Q. Well, it has not been denied, here. What is your judgment, as a physician?

A. I do not believe that nitrites are in a normal secretion of the saliva.

Q. No, that is not my question, at all. It may have been placed there, by reason of the bacterial action in the mouth?

A. Yes.

Q. But, as it is swallowed into the stomach, and reaches the stomach, what is your judgment, as a physician, as to whether the saliva does contain it?

A. I have no doubt that we often swallow nitrites.

Q. What would you say, as to the rule?

A. Well, I suppose it is very often. I will not say invariably, and I will not say it is not.

Q. Now, you say nature has no defense against that?

A. No, sir.

Q. None at all? Well, if nature has provided no defense against this, wouldn't it be reasonable to conclude that nature intended that I should take that into my system?

A. I don't think nature intended us to have bad teeth, and yet, that is the principal cause of nitrogenous or nitrifying bacteria having the effect in the mouth.

Q. But, let us take the little child, that has not got any teeth. Let us take the infant child, which hasn't got any teeth. Doesn't its saliva contain nitrites, as it goes into the stomach?

A. Yes. A little child's mouth is so dirty, it has to be cleaned out by boracic acid, by the nurse, every time it is nursed, to keep it from infecting the nurse's nipple.

Q. Well, take a child raised in the home, where the best sanitary conditions are observed, and a child that nurses at its mother's breast, it would still have these nitrites in its saliva, when it swallowed, wouldn't it?

A. The nitrifying bacteria? Yes, I suppose, on occasions, it would.

Q. Now, you say that nature, in that infant child, has provided no defense against these nitrites? A. No.

Q. Nature, you think, overlooked that?

A. No, I don't think so.

Q. Now, from the fact that the nitrites would be practically always present in the stomach, in the infant child, and that nature has provided no defense against it, isn't it reasonable to conclude that nature intended that that would go into the stomach?

A. No, I do not think that is a fair conclusion.

Q. Well, probably not. Now, in the study or practice of medicine, doctors aim to prevent, rather than, or as well as to cure, don't they? A. Yes.

Q. Now, have you ever heard, in the medical profession, of doctors prescribing or advising any remedy, to prevent the effects of nitrites taken in the way of food?

A. I think not.

Q. In all your practice, have you ever endeavored to overcome the effects of nitrites taken into the human system in the way of foods?

A. Not until recently.

Q. How recently?

A. Since I have known something about this subject.

Q. You made a deposition, in Philadelphia, last winter, on this question, didn't you? A. Yes.

Q. Now, up to that time, anyhow—you had been practicing medicine how many years? A. Twenty.

Q. Now, up to that time, had you ever, in your own practice prescribed or known of any other person prescribing any remedies to overcome the effects of nitrites taken into the system in the way of food? A. Not to my knowledge.

Q. Had the subject of the effects on the human system of nitrites taken into the stomach in the way of food, or carried into it in the way of saliva, ever been the subject of investigation on your part, or any other physician's that you know of?

A. Not on my part.

Q. And yet, you had been treating and dealing with people who had diseases of the stomach, hadn't you? A. Yes.

Q. And, up to that time, anyhow, after twenty years of practice, it had never occurred to you that of the diseases of the stomach might be due to nitrites taken into the system in the form of food products, or taken into the system in the way of saliva going into the stomach, had it?

A. No. I had no knowledge of it.

Q. Now, you speak of these nitrites, as being a poison. Do you mean that, if taken into the stomach, it might produce what you call chronic, or acute poisoning?

A. Well, if nitrites are taken in large quantities, they will produce acute poisoning.

Q. By acute poisoning, you mean where it happens speedily?

A. Yes.

Q. And, by chronic, you mean where it would result from the long continued use?

A. Yes.

1121 Q. Now, in your practice of your profession, have you even seen a person suffering from what you termed acute poisoning, which you diagnosed as brought about because of the presence of nitrites that had been taken into the system through the stomach?

A. Oh, yes. I have seen people poisoned with nitroglycerin.

Q. Well, I am not talking about nitroglycerin. You did not find any nitroglycerin in this flour, did you?

A. I am answering your question. You said, something taken into the stomach.

Q. Well, have you, in all your practice ever known of a person, or has there ever come under your personal observation, a person who was suffering from nitrite poisoning, such as you have described as would be in this flour, due to the presence of these nitrites in any food product that he had taken into his stomach?

A. No, I have never recognized any one suffering from any poisoning that I could attribute to nitrites. Now, may I go on and explain?

Q. Yes.

A. You have misquoted me, slightly. You are not quite quoting me correctly, in saying I testified to what kind of symptoms was produced by nitrites in this case.

Q. Well, I don't want to misstate you, or misquote you, Doctor, in this way, the least bit.

A. In answering your question, as I understand it, I have never seen any one in whom I could recognize symptoms that I could attribute to nitrite poisoning from food.

Q. And, has there ever been a case that has come under your personal observation, where a person eating food which contained nitrites such as you have testified about would be produced in this flour, has contracted nitrite poisoning, or whose health has been in any way impaired by it?

A. Not so far as I could recognize it.

Q. Well, your conclusion that it might result in that
1122 result is, of course, derived wholly from a system of reasoning which you adopt, rather than from anything which has come under your personal observation?

A. Precisely.

Q. Now, you, I think, referred to one of the effects of nitrites taken into the system, as acting on the blood, and changing the hemoglobin into met-hemoglobin. If nitrites, in a certain amount, were taken into the system, there would be produced met-hemoglobin, and some of this blood, is drawn from the person's veins, how could you ascertain, or demonstrate the fact that he had met-hemoglobin?

A. Met-hemoglobin, if in sufficient quantity, will make the blood a darker color, for one thing, and, for another thing—I will have to answer the question completely, and if the met-hemoglobin is not in sufficient quantity, it might be necessary chemically or spectroscopically, to determine the presence, there, of the met-hemoglobin.

Q. Well, if the blood were drawn from his veins, and he had taken a sufficient amount of nitrites to produce met-hemoglobin, would the spectroscope disclose the difference in the color?

A. The spectroscope would show certain lines, significant of met-hemoglobin.

Q. Would it be observable in the blood pigment, or, by that, you mean the blood color, do you?

A. You do not see the color in the spectroscope. You see lines which indicate the presence of a certain substance.

Q. Well, what do I understand by "blood pigment"?

A. The coloring matter of the blood.

Q. Would the coloring matter of the blood be affected, if a person had met-hemoglobin?

A. The met-hemoglobin is one of the derivatives of the coloring matter of the blood. The coloring matter of the blood is hemoglobin. If certain poisonous substances act upon the blood, the hemoglobin is converted into met-hemoglobin, which is a very slight modification, but a very significant one.

1123 Q. Well, what I am trying to get at is, whether or not you could discover the effects of this, by the color of the blood. A. Yes.

Q. Then, if a person took into his system an amount of nitrites which would be injurious to health—took it in short doses, it would be discoverable in the color of the blood?

A. Yes.

Q. Now, how much nitrogen as nitrites do you say, as a physician, that an adult of thirty or forty years of age, in good health, would have to take into his system, within a period of twelve hours, in order that you might notice its presence in the color of the blood?

A. I do not think that can be answered. I don't think it is known.

Q. Well, do you [that], no matter how large the quantity taken, you would not be able to discover it?

A. Oh, if a very large quantity, or [ever] a reasonably large quantity is taken, the effect would show, but how small a quantity—

Q. (Interrupting) What would you regard as a reasonably large quantity?

A. That would depend on the individual. Some people are very quickly poisoned, by those poisons, and some not so readily.

Q. I am trying to get the range.

A. I don't know what the range of figures is. It has never been worked out, so far as I know, but all I can say is, that how small a quantity would make it a visible change, I cannot say. It would depend upon the size of the individual, the character of his blood, the quality of his blood, the rate of his absorption, and so forth.

Q. Let us assume, Doctor, that a person thirty to forty years of age, weighing one hundred forty pounds, and in good health, an average individual,—that is what I mean,—should take into his system, during a period of ten hours, about eight or nine grains of nitrites as nitrogen, would that produce met-hemoglobin in the blood?

1124 A. It depends upon the kind of nitrites you put into him. Some, you would have a dead man on your hands.

Q. Well, suppose he took this in the way of sodium nitrite?

A. Sodium nitrite. He might possibly take that much and survive, and, in that case, I should certainly expect to find met-hemoglobin in his spectroscope.

Q. Well, how would the presence of it be noticeable on the person who took it?

A. Oh, there would possibly be a cyanosis. That is to say, a blueness of the skin, and of the features. That would be the noticeable effect, externally.

Q. Well, let us draw some blood from that person. Then, how would you see it there? A. It would be dark.

Q. There would be a difference in the color of the blood?

A. Yes.

Q. Blood pigment? A. Yes.

Q. And you think that amount of dose would have a very noticeable effect? A. That amount, I think, might kill.

Q. Now, I don't want to mislead you in this. I want to be perfectly fair with you, because I think you are with me. My question is now, if during a period of ten hours, covering a period of ten hours, a person thirty to forty years of age, and weighing, say, a hundred and forty pounds,—if he would take into his system eight or nine grains of sodium nitrite, do you say that the effect of it would be noticeable in the blood pigment, if some were drawn from his veins, say, within an hour, or two after the taking of the last dose?

A. Very probably. Not certainly, of course, for the reasons I gave a little while ago. Some individuals can stand an enormous dose of poison.

Q. Do you think that person would suffer any injurious effects, and not show the effects at all, from the taking of it?

A. The exceptional person?

Q. No, average person? A. I think so.

Q. Very noticeable in the blood? A. Very probably.

Q. Now, Doctor, in the practice of your profession,
1125 have you ever seen a case where a person was suffering from met-hemoglobin due to the nitrites contained in any food he had taken into his stomach?

A. Not in any case where I could attribute it to food.

Q. So, your conclusion that a person eating this bread, which contains nitrites, might have the hemoglobin of his blood converted into met-hemoglobin is not based upon any actual observation, or actual knowledge that you have, but from your general knowledge, and your reasoning?

A. Yes, that cause must follow effect—or, effect must follow cause.

Q. But the fact remains, that, in all your practice, you have never seen a person that was suffering from met-hemoglobin, which you diagnosed as due to nitrites contained in any food that he had taken into his stomach? A. No, sir.

Q. Did you ever find a person suffering from met-hemoglobin, where you diagnosed his case as due to anything he had eaten?

A. Yes, if you call swallowing medicines eating, I have seen that, yes.

Q. Well, he had been "doped" with medicine, until he had it, but, have you ever seen a person that was suffering from met-hemoglobin, due from anything he had eaten as a food product? A. No.

Q. No matter whether it contained nitrites or not?

A. No, I have never seen that.

Q. Now, nitrites, Doctor, which are taken into the system in other food products, I assume would be just as injurious as when taken in the form of flour? You do not condemn that because flour is the carrying medium? A. Not at all.

Q. The effect would be just the same in the other, and, if nitrite is contained in ham, as Brother Butler suggested, that would be just as injurious as that contained in bread?

A. I think so.

Q. And any other food product would be on the same plane?

A. On the same plane, yes.

1126 Q. So that, if I should abstain from the eating of bleached flour, because it contains nitrites, the same reasoning would cause me to abstain from the use of any other food product that contains it, wouldn't it?

A. Anything that contained nitrites.

Redirect Examination

By Mr. Butler:

Q. Some of the questions asked by Mr. Smith suggest the propriety of asking you whether or not met-hemoglobin is a disease?

A. No, I tried to make that clear. Met-hemoglobin is a change of the blood in question, which occurs from nitrite poisoning, and it is not a disease. It is simply a manifestation of that poisoning.

Q. It is a change in the blood?

A. It is a change in the blood.

Q. And it is observable, when microscopically viewed?

A. Spectroscopically.

Q. And, is that an easy matter?

A. No, that is a matter of considerable expert ability.

Q. Requiring great skill in the observer?

A. Of course, if a person has an overwhelming dose of nitrite poison, as I said before, he may get blue in the face, and the blood drawn from a vein look dark, even, but, in order to determine the small quantities of met-hemoglobin in the blood, would require an expert hand with the spectroscope.

Q. Now, would the customary use of bleached flour bread, assuming it to be eaten as bread is usually eaten, over a long period of time, injuriously affect health, when there is no observable effect from it, immediately after eating it, for a considerable period of time?

A. The explanation I would make of that, seems to me a perfectly simple one. If a certain poison has the power, and, inevitably that power of attacking your blood and destroying a certain amount of it, proportioned to the amount of poisoning you take into you, no matter how small a dose you take, every time you took that dose you would be doing that damage to your blood. Now, fortunately, we are so built that every time we do a little damage to us, we don't die right off, but the body has the power to make up for wear and tear, but it doesn't do to make that wear and tear come too often, and it doesn't do to increase and multiply the kinds of wear and tear that we expect the body to overcome, and therefore, if you take a poison, even in small quantities, it is capable of doing even a small damage to your blood, day in, and day out, and you do, in the long run, a great damage, to not only the blood, but to the parts of the body that restore the blood, because the blood has to be made by the organs, especially the bone marrow, and, after a while, you exhaust that capacity, and there is a great injury done, and the same thing applies to the slight effects of poisons upon other structures. Once, or twice or three times, you can transgress. I don't mind smoking a bit, but I know I could do myself damage if I smoked too much.

Q. Now, some comparison was suggested, in the questions of Mr. Smith, between benzoic acid, and nitrite reacting material, and between acetic acid, and nitrite reacting material, and hydrochloric acid and nitrite reacting material, and you declined to put them on the same basis, notwithstanding benzoic acid might, in certain quantities, be injurious, or poisonous, and so with acetic acid and hydrochloric acid. Now, will you make clear the distinction that is to be made between the benzoic acid, and acetic acid, and hydrochloric acid, on the one hand, as against nitrites on the other?

A. Well, taking them as a group, and taking benzoic acid as representing that group, nature has provided a very satisfactory method, by which, up to a certain point, benzoic acid may be neutralized in the body, and excreted in a relatively harmless form, from the body, through the urine. That is a method of combination in the liver, probably, between benzoic acid and another substance, so that they are eliminated as a harmless thing, the same way that you might combine two very powerful poisons—as is well known in chemistry, some two very powerful poisons may combine, and,

together, they may make one harmless substance. Now, that is what nature is able to do with benzoic acid, up to a certain point. Now, the taking of such quantities of benzoic acid, as exist in cranberries, and some other vegetables, does not do damage to the body, because this mechanism is there, provided by nature. The fact that it is there, I suppose, might be taken to indicate that nature was prepared for that in the food, and the fact that it is not there for nitrites, I suppose might reasonably be taken, in the other direction, that nature was not prepared for nitrites.

Q. Now, as to nicotine, itself. That is a poison, is it?

A. I consider it—yes, it is a poison.

Q. A very strong poison?

A. A very strong poison.

Q. Nicotine is not found in a pure state, very frequently, is it? A. No.

Q. Very dilute, in the ordinary use of tobacco?

A. It is very dilute in tobacco. Very small quantity.

Q. I once read a statement that a drop of pure nicotine on the tongue of a dog would kill the dog. Is that reasonably within the limits of the potency of the poison?

A. I don't know. I suppose that is reasonably within it.

Q. Is strychnine such a poison as nitrites, that nature has no way of defending itself against?

A. Apparently, there is some little capacity for neutralization. That is uncertain.

Q. It is administered, is it, as medicine, sometimes, to stimulate the heart action?

A. It is used as a medicine, very frequently.

Q. You would consider the addition of very minute quantities of that, to flour, injurious to health?

A. I certainly should.

Q. And notwithstanding that you have never been called, in your practice, to treat a patient who was suffering
1129 from strychnine poisoning taken in the ordinary course of the consumption of food?

Mr. Scarritt: We object to that as argumentative, if Your Honor please, not calling for an opinion on the case.

The Court: Yes, I believe that is objectionable. Objection is sustained.

Mr. Butler: I think that will be all.

Mr. Smith: I believe that is all, Doctor.

Witness excused.

S. F. Acree, being recalled, was examined further, and testified as follows:—

By Mr. Butler:

Q. Dr. Acree, can you indicate to us the rate of decomposition produced by nitric acid in wet flour, or nitrous acid, or both?

A. Yes. I did some experiments on that point, to see whether or not, when we mixed water with flour which contained nitric acid, there is any decomposition of the flour by the nitric acid, and to see whether or not that begins at once. I might say that, without going into the details, unless you want them—

Q. Give us the results, as distinguished from experimental details.

A. Well, the results show that the action begins at once, and that it continues for several days. In order to see further, whether or not this reaction is peculiar to simply nitric acid, or, whether it is due to the fact that the substance is an acid,

and that any other acid might behave in a similar way,
1130 I carried out some other experiments along this very same line, and I have found that, for instance, hydrochloric acid begins to decompose the flour, when it is wet with water; begins to decompose it at once, and the amount of decomposition is analogous to that produced by nitric acid. I might say, further, that, in experiments that I carried out with sulphuric acid, and with sulphurous acid, they decompose the wet flour just as nitric acid and hydrochloric acid do. In other words, an acid, mixed with wet flour, begins at once to cause a decomposition of the flour.

Q. And as to the bleaching effect. Will hydrochloric acid, or chlorine and sulphuric acid, and other such things, take the color out of flour, too?

A. Yes, they will. I have carried out a number of experiments on that point. For instance, I carried out an experiment with dry flour. I treated dry flour with hydrochloric acid gas. The gas reacts upon the flour, at once, and it bleaches the flour at once, just as nitrogen peroxide would do. I tried also the action of sulphur dioxide gas. That bleaches flour, just as nitrogen peroxide would, and it acts upon the flour, combines with it, partly. I have tried the action of the sulphuric acid, and hydrochloric acid on wet flour, too, and they decompose and bleach wet flour. This is a very general reaction, apparently.

Q. Now, with respect to the effect upon the action—the chemical work of nitrous and nitric acid, of yeast employed customarily for making bread. What can you say about that, if anything?

A. Will you read that question, please.

(Question read by the reporter.)

A. The action on the yeast?

Q. Yes. Will the yeast prevent the action, chemically? Now, suppose you put yeast into bread, what effect would that have upon the chemical work?

A. The yeast could not, or would not take up the acid, when making the bread rise, certainly not completely. I have,
1131 myself, tested bread that was bleached, and had yeast in it, was made to rise with yeast, and I found that the nitrous acid, at any rate, was still there, and as long as it is there, it certainly would just keep on acting on the flour.

Q. Now, this morning, you spoke of chemical action continuing while nitrite reacting material was found in the flour. Did that accurately express what you intended to say?

A. I meant as long as this free nitrous acid and free nitric acid are present. Of course, if there were enough salt, or metal, or any other substance in there, to neutralize these acids, and convert them into sodium nitrites for instance, or calcium nitrites—

Q. (Interrupting) If it combined into salt, its chemical action would be at an end?

A. Yes, that would end it.

Q. But, would it disclose the ordinary chemical action, by an application of the Griess test?

A. Yes; you would find nitrites still there, if you were to apply the Griess test.

Q. What is the Griess test? What is it, historically, and what does it contain, and so on?

A. Well, along about in 1860, there was a man named Griess, who learned that, when you treat the amino compounds with nitrous acid, in the presence of other acid, or alone, even, that the nitrous acid acts upon the amino compounds, and forms a diazo compound. Now, that diazo compound again reacts with the original amino compounds, or with other amino compounds which you may put in there, and form a deeply colored, so-called "azo dye" stuff. I might, if you wish, represent that reaction on the blackboard. Do you wish to have that?

Q. Well, perhaps we had better have it?

A. Well, let us start with the naphthylamine, which is used in the ordinary Griess test. We would have this reaction (indicating on blackboard). That naphthylamine
1132 is a substance containing carbon, hydrogen, and nitrogen, in the proportion of 10 chemical equivalents of carbon, to 7 of hydrogen, to one of nitrogen, and to two of hydrogen, in that grouping. When that substance is treated by the nitrous acid, which we represent, chemically, in this way, HNO_2 , the first step is, that water is eliminated,

and we have, then, the so-called diazo compounds, in the presence of hydrochloric acid, or any other mineral acid, say, we would get a substance $C_{10}H_7N_2Cl$, simply plus two molecules of water. Now, this substance, again, then reacts with this original amino compound, another portion of it, present, or, with any other amino compound; and the test is carried out, today, and is known, today, as the "Griess-Ilosvay", or some such pronunciation, which is a Russian name. Now, this diazo compound is treated with another substance, called sulphaminic acid, which has the formula representing one chemical equivalent of nitrogen, two of hydrogen, six of carbon, four of hydrogen, and one of sulphur, three of oxygen, to one of hydrogen. Now, this substance, $NH_2C_6H_4SO_3H$ reacts with this one, $C_{10}H_7N_2Cl$, and forms the deeply colored dye-stuff that you have all seen, so often, here. The formula would be $C_{10}H_7N_2$. Sometimes we write it this way— $N=N$. That is the source of the color, which is on the grouping right here (indicating $N=N$ group). And then, C_6H_3 , NH_2 , SO_3H , or, all together, $C_{10}H_7N_2C_6H_3(NH_2)SO_3H$. There is not very much room for writing, there. Now, that substance is very deeply colored. You could get corresponding deeply colored compounds, by using a various number of other substances, but this is the chief one concerned here (indicating). I might say you could start with the sulphaminic acid, and treat that with nitrous acid, and get a diazo compound, and treat it with the naphthylamine, and you would get another dye stuff, which would be deeply colored and analogous to this, or $NH_2C_{10}H_6N_2C_6H_4SO_3H$, but the main point is, you get a complex substance here, which has a deeply colored grouping in it, and that test is so sensitive, that you can detect one part of nitrites,

for instance, N_2O_3 , in one thousand million, or one billion parts.

Q. And the quantity of the nitrite is measured by the differences in color?

A. Yes; by the depth of color. This particular modification of the Griess method was made about 1880.

Q. What effect, if any, does the bleaching of flour, by this gas, have upon the enzymes of the flour?

A. Well, we have, in flour, two different kinds of enzymes, amylolytic and proteolytic. Now, the amylolytic enzymes act upon the starch, and the proteolytic enzymes act upon the proteins. These are both common to most plants. The plants need both enzymes, to make foods for themselves. Now, as a general thing, these enzymes are very sensitive to the action of acids. Acids are deleterious to the action of these enzymes. They prevent the natural changes taking place in flour by these enzymes, in the ripening of the flour, itself; in the aging of the

flour, certain processes must take place. There are certain processes taking place in there. These are changes in the physical appearances of the flour, and changes in organic acid, and other things. Now, these acids would have a deleterious influence on the action of the enzymes, in bringing about the natural aging of the flour. I recall, for instance, an experiment by Loevenhart in which he used one part of a substance, sodium fluorid, in a million parts of water, one to a million. That prevents very seriously the action of an enzyme called lipase, which occurs in our liver. It is one of the enzymes in our liver. That is merely an illustration. These substances often act in a deleterious way. I, myself, have done work with lipase and I have done work with a number of other enzymes, and I have always been very careful to neutralize the acids formed during reactions. In fact, the acids formed, during certain re-actions, make the enzyme quit work, and then we have to neutralize those acids, and when you do that, the enzyme will then begin to work again. I have had experiments like that, in my own researches, which simply show that these acids, in a great number of cases, change the action of those enzymes.

1134 Q. Is this enzymic action a natural process in the digestion of unbleached flour bread?

A. Yes, I should say so.

Q. And the effect of bleaching it with these acids,—what effect does that have upon the enzymic action?

A. I should say, in general, that it modifies it very seriously.

Q. Reduces it?

A. Yes. I have worked with both bleached and unbleached flours, and my experience is that it alters the aging, quite considerably. I do not think that any such acid materials should be added to flour, unless it is certainly proved, first, that they do not have a deleterious action.

Q. Now, as regards the chemical efficiency for work of a very small quantity of this nitrous acid, working over and over again by this method you called this morning "catalysis"; is that true of any other acid's chemical performance?

A. I can illustrate that, I believe, very aptly, by a commercial process,—one of our most important commercial processes of today. We all know that sulphuric acid is manufactured in enormous quantities, and is a thing of very great importance in commerce. Now, if I may use the board to illustrate that question—

Q. If you can do so.

A. In the sulphuric acid industry, sulphur, which we represent by "S", is burned in the air, and it takes up two equiv-

alents of oxygen, and forms a gas, sulphur dioxide, that doubtless all of you have heard of.

Q. SO_2 ?

A. It is a gas which bothers you when you breathe it, has a terrible effect on the lungs, and is a very deleterious substance. Now, the gas is let into large rooms, like this, the walls are lined with lead, and, at the same time, air and steam are let into that room, and the sulphur dioxide reacts with the water, and forms sulphurous acid, which we then write " H_2SO_3 ". It is simply a substance formed by the union of the SO_2 and the H_2O .

1135 Q. Now, what is the sulphuric acid?

A. Sulphuric acid is H_2SO_4 . That is not formed, directly, by this action, but you must have the additional oxygen to form the H_2SO_4 from this sulphurous acid. Now, the air itself cannot oxidize the sulphurous acid readily enough to give you sulphuric acid in quantities which would make it a commercial process, so we have to use, in this form, the oxidizing power of the nitrogen peroxide that I spoke of this morning. And, when we lead not only the sulphur dioxide, or water, and the air, in there, we lead in some nitrogen peroxide, too, and that, then, reacts with the sulphurous acid very readily, indeed, in this way: NO_2 gives up one oxygen, to N_2SO_3 , and forms H_2SO_4 , and leaves NO , which is left to unite with O of the air again, to form NO_2 . Now, that takes place just as quickly as the nitrogen peroxide acts upon the flour, just like that. I am not giving you the details of this, gentlemen, because I don't see any use in going into that, but nitrogen peroxide oxidizes that sulphurous acid, just as quickly as it is taken up by the flour,—at once. Now, this nitrogen monoxide can take up oxygen from the air instantaneously, takes it up right at once, and forms again NO_2 , and that, again, oxidizes the H_2SO_3 , and so, a small amount of NO_2 can cause the air—that is what it is, ultimately, the oxygen, there—to change a great deal of H_2SO_3 into H_2SO_4 . The NO_2 , then, is the catalytic agent. Now, in the same, the nitrogen peroxide acts upon the flour,—forms nitric acid, that acts upon the flour. In turn, more NO_2 is formed, as I have shown by experiment, and the NO_2 , combined with the water, forms nitric acid, and that acts upon the flour; and, so it goes round and round and round, just exactly as this nitrogen peroxide goes round and round and round in the sulphuric acid industry.

Q. So that a relatively small amount of this NO_2 may, by this action called "catalysis", work an almost unlimited chemical change upon the substances of the flour?

1136 A. Yes. In other words, it would make the air oxidize, and decompose the flour. Of course, if we have the substance in the open, and in order to get this out—if we had the

flour exposed so that the nitrogen peroxide got out of the flour and got away into the air, that would be a different thing. Of course, then, that is another thing. It would not be acting, but, as long as the nitrogen peroxide is there, it will bring about these decompositions.

Q. I find it stated in this patent, which is marked the Government's Exhibit No. 1, specifications, patent numbered 759,651, stated as follows:

"Two samples of flour were submitted for analysis to a professor of chemistry in the Columbian College, Washington, D. C., one of these samples was taken from a batch of flour, before its treatment by my process, and the other was taken from the same batch of flour, after its treatment by my process. The untreated flour showed the following constituents, in the proportions named: Water, 9.84; Starch and so forth, 74.11; proteids, and so forth, 14.99; ash, 0.44; fat, 0.62. The flour which has been treated by my process, showed the constituents in the following proportions: Water, 10.13"—an increase of water, it will be observed—a small amount—

"—Starch, and so forth, 62.24."—

a decrease of about 12 per cent.

"Proteids, and so forth, 26.71"—

an increase of over 12 per cent.

"Ash, 0.30"—

a decrease of .14.

"Fat, 0.62"—

remaining unchanged.

"It will thus be seen that the flour which had been treated, showed an increase of 11.72 parts of proteids, and a decrease of 0.14 parts of ash, and of 11.87 parts of starch, and an increase in the proportion of proteids, which is a highly advantageous result, as flour, having such proportion of proteids, is, of course, more nutritive than the ordinary flour of commerce."

Now, I want to ask you whether or not it is chemically possible, by the treatment of flour by this Alsop process, to increase the proteid content of the flour at all.

A. Well, I should say, as an organic chemist, that such reaction is absolutely impossible. The addition of the nitrogen peroxide, and of the nitric acid, will slightly decrease the amount of proteid, there, as I have proven by experiment. That is the only thing that any organic chemist would think of

for a moment, and that it would increase the proteids, and by any such amount as that, it is absolutely impossible.

Q. Now, with respect to the decrease of the starch, and the corresponding increase of the proteids. Is it chemically possible by any such treatment, to change the starch into proteids?

A. I should say that it is absolutely impossible. No such reactions, in organic chemistry, are known.

Q. Now, with respect to the increase in moisture. What would be the effect of the treatment by this gas, if any, upon the moisture content?

A. Well, if you were to heat the flour during the bleaching why, naturally it would give off some moisture, or, if you were to bring moist air into contact with the flour, it might take up a little moisture; but, so far as the process itself is concerned, the amount of moisture that it could add or subtract, would be very, very small.

Q. Now, what does the decrease in the ash mean? There is a very serious decrease, from 44 to 30. That would be, 14 is to 44, which is a decrease of about 30 per cent ash. Is that chemically possible?

A. No, sir. I should say that would be impossible.
1138 The only change that could be brought about there, would be the substitution of, for instance, carbonic acid radicle by nitric acid radicle, and that would increase the weight of the ash in there, if it did anything at all.

Q. Now, how about the effect on nutritive value, of treating the flour with this gas, NO_2 ? Would it increase its nutritive value, leave it unchanged, or, decrease it, or do you know? Is that your field?

A. I should say that, since my own experiments have proven that the nitric acid decomposes the proteids which, as everyone knows, must be an essential, important food constituent of this flour, you would have a lowering of its value, if anything; and, furthermore, the addition of substances like nitric acid, and nitrous acid, which, as we all know, have a certain well defined deleterious chemical action, that the addition of this would also make this substance deleterious, and would make the flour have a smaller food value, rather than a higher one.

Q. This further statement is found in the patent:

"The second analysis of the flour was conducted by the Henry Professor of Physics, of the Princeton University, and his Assistant Professor, and it was found that, while the untreated flour contained fifty-four-one-thousandths of a gram of nitrogen per one gram of flour, treated flour contained seventy-five-one-thousandths gram of nitrogen per one gram of flour."

Apparently a substantial increase in the nitrogen content of the flour.

A. Why, on the face of it, such a reaction as that could not take place, because you do not add that amount of nitrogen, even if you consider that all of the nitrogen added were converted into the proteid substance. You do not add that amount. And, furthermore, the reactions could not possibly be that kind. Speaking as an organic chemist, I should say that that could not take place.

(A recess was then taken for five minutes, after which
1139 the examination of witness Acree was resumed by Mr. Butler as follows:—)

Q. I will ask you whether or not the bleaching of flour by this Alsop process produces oleic acid in the flour?

A. The nitric acid formed, or the nitrous acid, begin at once to decompose the fats, there, and oleic acid would be one of the products formed.

Q. One of the products of the decomposition?

A. Yes, hydrolysis, or decomposition of the fat.

Mr. Butler: That will be all.

The Court: Claimant's counsel may cross-examine.

1140

Cross-Examination

By Mr. Scarritt:

Q. Doctor, you examined this Alsop process, as I understand? A. Yes, sir.

Q. Now, I am no chemist, and, if possible, let us forget these feats of science for a few minutes, and see if we can't get some United States into this, that we can understand what you mean. Now, this process, as I understand it, is simply the air passing through an electric spark, or an electric flame, or arc, passing from one side of it, across the flame, and, after it crosses the flame, it comes in contact with the flour? A. Yes.

Q. That's all there is to it, isn't it?

A. Well, essentially, of course. Of course it goes through a system of pipes, to the agitator, and mixes there with the flour.

Q. I know, but I am talking, now, about when we get up to the critical point.

A. Yes. That is the essential detail of it.

Q. Before it goes into this flame, it is simply air, or atmosphere? A. Yes.

Q. Do you make any distinction between "air" and "atmosphere"?

A. Not in ordinary terms. Not as every one would understand it.

Q. Therefore, it is simply air going through this flame, and, after it goes through the flame, coming in contact with the flour, and instantly, if I understood you, reduces the color of the flour?

A. Well, the color of the gas disappears, it is taken up, at once. That is what I spoke of. The gas was taken up, at once, when you mix the flour up with it.

Q. Well, isn't the color of the flour taken up, also?

A. It is bleached very quickly; of course.

Q. That is, the color is taken out of the flour?

1141 A. Yes.

Q. Whatever is formed by the air going through this electric flame, has an affinity for that color in the flour, and absorbs it, at once?

A. Well, what I mean, there, is, that the nitrogen peroxide begins to act upon the flour, at once, and one of the things it does is to decolorize it. It may not decolorize it just like that (snapping fingers) but it begins to do it.

Q. It begins to do it, in a few seconds?

A. Fifteen, or twenty, or twenty-one seconds.

Q. It has made it the color of this flour which we have here?

A. Well, I would say that it begins to bleach it, at once; yes. Just at what time it would have the color of that flour, of course, I don't propose to say.

Q. Now, the nitrogen, and the oxygen, which you say compose the nitrogen peroxide, are both elements of the air?

A. Yes.

Q. Nitrogen is an essential element of the air, isn't it?

A. Yes.

Q. We could not live without it, could we?

A. Live without nitrogen?

Q. Yes?

A. Yes, we could live without nitrogen, as such, in the breathing. The nitrogen, so far as it is known, and so far as I have ever heard, is not used when it is inhaled into the lungs. It is the oxygen that is used up, but not the nitrogen.

Q. I understand the oxygen perpetuates life, but oxygen, by itself, would kill, wouldn't it?

A. Oh, you could dilute the oxygen—

Q. But wait a minute. Oxygen, by itself, would kill me, wouldn't it?

A. If you would breath it long enough, it might.

Q. In other words, neither animal or plant life could subsist on oxygen, alone, could it? A. No.

Q. Therefore, nitrogen is an essential element of life, isn't it, both in animal and plant?

1142 A. Not in the sense that you are trying now to bring out.

Q. You don't know what sense I am trying to bring out. It is a natural element of the air, then, isn't it? A. Yes.

Q. And oxygen is a natural element of the air? A. Yes.

Q. And, when it goes through this flame, it is still nitrogen, and still oxygen, in different relative degrees to each other, isn't it?

A. Yes. The original nitrogen and oxygen have been partially converted into nitrogen peroxide, and, therefore, the ratio—

Q. (Interrupting) There is four times as much nitrogen in the air, as there is oxygen, isn't there?

A. That is, approximately. It is about five times.

Q. About five times? A. Yes.

Q. And nitrogen is a free agent, in the air, isn't it?

A. There is about five times as much free nitrogen in the air, as there is free oxygen; yes.

Q. And, when it goes through this flame, it is still nitrogen, and still oxygen, isn't it?

A. Part of it is, but part of it has been converted into nitrogen peroxide.

Q. Well, nitrogen peroxide is simply nitrogen and oxygen, isn't it? A. Yes.

Q. Nitrogen peroxide means nitrogen through oxygen, don't it,—the literal translation of the words?

A. Now, nitrogen peroxide—

Q. (Interrupting) Please answer that question. You can answer it by "yes" or "no", then explain it, if you want to. Nitrogen peroxide simply means nitrogen through, or nitrogen in oxygen, don't it? A. No. It doesn't mean that, at all.

Q. Now, what does it mean?

A. It means that you have more oxygen—"per" oxide. There is more oxygen.

Q. Than nitrogen?

A. There is more oxygen in this nitrogen peroxide, than there is in nitric oxide. Nitric oxide is NO.

1143 Q. I am not talking about that.

A. I am trying to explain what this "nitrogen peroxide" means, if you will allow me. Nitrogen peroxide is a name given to NO₂, because there is more oxygen—"per"—more oxygen in NO₂ than there is in nitric oxide, NO.

Q. Do you call the air, before it goes through there, "nitric oxide"?

A. No, sir. I am speaking, now why we name the substance which we, as chemists, call NO₂,—why we call it nitrogen peroxide. You were trying to derive the name from certain considerations, and that is not at all the consideration for the naming of NO₂.

Q. It is still nitrogen and oxygen? A. Combined; yes.

Q. One part nitrogen, to two oxygen, isn't it?

A. Yes; combined.

Q. That is what you call "nitrogen peroxide"?

A. Yes, and that is—

Q. (Interrupting) And that is nitrogen and oxygen?

A. That is, combined chemically into a substance which is altogether different, perhaps, from either nitrogen or oxygen.

Q. I understand that it is a different mixture of the same thing? A. It is a different chemical compound.

Q. Another thing, it is one of your decompositions, isn't it?

A. It is a different chemical compound, altogether.

Q. I understand that.

A. You cannot compare nitrogen peroxide, a distinct chemical compound,—you can't compare that with nitrogen and oxygen, as similar substances, any more than you could compare the poisons potassium cyanide with the element potassium, which is a substance which takes fire in the air, and the element carbon, and the gas nitrogen.

Q. Now, you are getting beyond me. I don't understand a word of that, but, after you get through this flaming arc with your air, which is composed of nitrogen and oxygen, you still have these two same substances, don't you?

1144 A. You still have some of the original nitrogen, and some of the original oxygen, and, now, an entirely new thing, nitrogen peroxide, in a compound gas, which is altogether different, perhaps, from either the nitrogen or oxygen.

Q. What kind of a gas?

A. A mixture of nitrogen peroxide, and nitrogen and oxygen and moisture, and other things, which we need not enter into here; the air which is breathed around here.

Q. Now, when this nitrogen and oxygen went through this flaming arc, it produced the same substance, or the same gas, that lightning does when it goes through the air, doesn't it?

A. Yes. That is true. Some nitrogen peroxide is formed under those conditions.

Q. And, when lightning goes through the air, in a thunder-storm, it clarifies the air, don't it?

A. Clarify? What do you mean by that?

Q. I mean, renders it more healthful,—more delightful.

A. I don't know that it does.

Q. More salubrious?

A. Insofar as it produces nitrogen peroxide, it would render it more harmful, because all you have to do is to take some of the nitrogen peroxide into your lungs, and you go to coughing and spitting around.

Q. But you don't cough, and sneeze around, after a thunder-storm?

A. Well, I know of one instance, when it struck a house in which I was sitting. The ball of lightning went immediately over my head, and I must say that the fumes were so dreadful that I had to leave the room.

Q. How long did those fumes stay there?

A. They commenced to get out right away. Now, if you will allow me—

Q. Well, you are talking about something I don't know anything about, and you should answer my questions.

1145 Mr. Butler: I insist that the witness ought to be permitted to talk about something.

Mr. Scarritt: I want him to talk about something, but I want him to say something that we all can understand.

The Witness: Well, I will say that, from my own experience, the gas that is formed immediately around this bolt of lightning was anything, certainly, but salubrious; and I would say that, as they got out in the air, and diffused, they would, of course, become less and less harmful; but, because you don't get that, at once, when you are a mile away, that is a different thing.

Q. Now, do these phenomena of the storm produce nitrites, from this nitrogen peroxide?

A. The nitrogen peroxide, in combination with any moisture in the air, will produce nitrous acid, and nitric acid.

Q. And those nitrites are washed out of the atmosphere by the rain, aren't they?

A. If there is a rain; yes.

Q. They go into the ground, don't they?

A. Or something else that collects them.

Q. Or, they go into the cistern, or wherever it is?

A. Yes; and we can prove their presence, there.

Q. And you can prove their presence in soil, and water, and vegetables, and meats, and flour, and a great many other things, can't you? A. I should think so; yes.

Q. And you can also prove the presence of nitrogen, as such, in these things, can't you,—in the vegetables, in plant life, and in animal life?

A. Answering that question in this way; If you mean that the nitrogen goes in and forms a part of our body, just exactly as various other substances do, I should say no. I should say that nitrogen occurs, as such, only in our lungs, as we inhale the air that comes in and out. Of course, there may be a
1146 mere trace of nitrogen in our blood, but it is something that we need not consider.

Q. Yes, we must consider it. There is some in the blood? There is some in the brain,—in the grey matter in your head?

A. Now, let us carefully differentiate, there. You said nitrogen, as such. I take it that you don't mean that.

Q. What do I mean?

A. If you mean that nitrogen is in combination with other things—

Q. Well, take it that way.

A. That's what you really meant, wasn't it?

Q. Well, it was there. I don't know whether it is in union or not.

A. That nitrogen is combined with other things, and is a part of our brain, and our blood, is true, but not as such, any more than the merest trace.

Q. But it is there, and it is in the plant life, too, isn't it?

A. In combination with other things, it is very greatly.

Q. Of course, we are not all made of nitrogen, or anything else? A. No.

Q. It is a wonderful combination of both plant and animal life, isn't it?

A. Yes.

Q. Made up of a great many things. Now, every one of these examples that you worked on the board, there, trying to make it plain, as you say, indicate decomposition, don't they?

A. Well, in some of these cases I was showing how the colors are formed, you know. I wasn't speaking of decompositions, then.

Q. What were you speaking about?

A. I was merely illustrating how these Griess reagents combine to form a kind of compound which is intensely colored.

Q. And in order to do that, you have got to follow a process of decomposition, haven't you?

A. Those things react with the other things; **yes**.

1147 Q. In other words, in every moment of your life, there is some sort of decomposition going on within your own body, and within the plant life around you, isn't there?

A. Yes, there is.

Q. Now, you take the wheat, from the time it goes into the ground, it begins to decompose, don't it? A. Yes.

Q. When it decomposes it forms another thing, don't it?

A. Yes. Other things are formed.

Q. And, immediately upon forming another thing, it begins to form another thing, don't it?

A. Yes. That is true.

Q. And when it comes up into the stalk, there is still decomposition going on?

A. Yes; both decompositions and unions to form other things.

Q. Until it reaches the kernel of the wheat? A. Yes.

Q. Now, the kernel of the wheat is not flour, is it?

A. It is the ordinary flour, with other things, of course.

Q. With other things?

A. Yes. There may be other things there.

Q. But you take the wheat,—that is a natural growth, isn't it? A. Yes.

Q. Flour is not natural, is it?

A. No. It is a thing we get from wheat, of course.

Q. Flour is a thing that is produced by the ingenuity of man, isn't it, from wheat?

A. Yes, in the particular physical form; of course, there are no chemical changes, however, certainly appreciable, brought about by the mere physical thing of opening this grain, and taking out the middle of the grain. I don't want to be understood that way, a moment.

Q. What I am trying to get at, is this, Doctor: There is a change, from the time the wheat is planted, until it is ground, isn't there? A. Yes.

Q. Even as soon as you cut the stalk of the wheat off the ground, there is decomposition commences there, isn't there? A. Yes. That is right.

Q. And when you put it in the shock, and in the stack, and in the granary, there is decomposition going on all the time? A. Yes. That is true.

Q. Forming different chemical results? A. Yes.

Q. One after the other, almost as fast as you could count, aren't there? A. Yes.

Q. And when you grind it into flour, take it from the mill, and put it into the barrel, or the bag, decomposition is still going on, isn't it?

A. Yes; of a kind that is agreed by every one to be very beneficial. In fact, they let flour stand, for months, in order to allow these beneficial changes to take place.

Q. Now, when it is put into this mill, and this nitrogen peroxide is brought in contact with it, it is exactly the same effect on the flour, as it would have if the nitrogen peroxide was from the air from a stroke of lightning, isn't it?

A. I think so, yes; except this: You must differentiate between the amount that you add, there, and the other.

Q. Assuming it is the same amount?

A. Yes, sir. That is right.

Q. Assuming it is the same amount? A. Yes.

Q. In other words, nitrogen peroxide, through the flaming arc, has the same effect on flour as it would be through natural lightning, doesn't it?

A. Yes, I should say, if the conditions are all the same. We are both trying to arrive at the truth, and I want to understand you, as I want you to understand me.

Q. Yes: I want to understand you, Doctor. We are working together to the same end. Now, that flour, after it has gone through a process of decomposition, from the time it is milled up to the time it is baked in bread, assumed another form of decomposition, don't it, when it is baked into bread?

A. Yes. There would be other chemical changes taking place; yes.

Q. And, when you put yeast in it, you organize another form of decomposition, don't you?

A. That is true; yes, sir.

Q. And when you put water in it, and salt in it, or butter-milk in it, or anything else that the housewife uses to make her dough, to bake her bread,—every one of those things institutes another process of decomposition, don't it?

A. I wouldn't say that every one of them does, but some of them would. The water, for instance, would begin to act on the flour.

Q. Don't the yeast act on it? A. Yes.

Q. And wouldn't the salt act on the flour?

A. No, I would not say that.

Q. Why do you put it in? A. Make it taste nice.

Q. If it don't act on it, why should they put it in?

A. We don't say that the sodium chloride, itself, acts upon that flour. In other words, the sodium chloride is a necessary thing for human life, and personally, I should say it wouldn't make very much difference whether you took the sodium chloride from a teaspoon, or the other way. In other words, the sodium chloride is added to the bread to make it taste nice, and, for that reason—

Q. (Interrupting) But, when the sodium chloride is added to the bread, it dissolves, don't it? A. Yes. It dissolves.

Q. And when it dissolves, it undergoes decomposition, don't it?

A. That is the same question you asked; and I should say we don't know that that sodium chloride does.

Q. It does change, don't it? In other words, you wouldn't have the same chemical result in analyzing that dough, before and after putting the salt in, would you?

A. No, but that has nothing to do with the question whether the sodium chloride reacts chemically with the flour. I maintain simply this: That, so far as I know, in general, I would say that the sodium chloride simply stays in the flour, unchanged, and that it is eaten, and afterwards used in the body.

Q. Now, when you say "sodium chloride", you mean salt, don't you? A. Yes, I mean salt.

Q. Let us call it "salt". Let's get down to United States.

A. Well, I didn't notice the use of the word "sodium chloride" instead of "salt".

1150 Q. Now, when you put salt in the bread, it melts, don't it? A. It dissolves, we will say.

Q. And changes from salt into something else, don't it?

A. No. It simply goes in solution in the water.

Q. With the water?

A. It goes into solution in the water. Dissolves in the water.

Q. Don't that change the water?

A. Yes, but let us differentiate carefully between this question. If you want to ask merely whether or not the salt dissolves in the water, and stays in the bread, and we eat it, I will say yes. If you want to insist that the sodium chloride reacts, chemically, with something else,—as I take it that is what you want—

Q. Yes.

A. I should say no, it does not; and I think that is the final answer.

Q. Then there is no substance in this salt that is changed, when the salt goes in solution in the water, is there?

A. I should say there is not. Simply a physical mixture.

Q. That is all? I think it is immaterial.

A. Yes, I think it is immaterial, myself.

Q. Now, what does the yeast do in the bread, with reference to introducing bacteria, or anything of that kind?

A. If the yeast is free from bacteria, it doesn't do anything.

Q. Well, is it ever free from bacteria?

A. I should say that we can get yeast that is free from bacteria. Yeast is a plant.

Q. Did you ever see any that wasn't, bought on the market, here? A. That is a different thing.

Q. The commercial yeast.

A. The commercial yeast. If you wish me to answer that question I should say commercial yeast contains bacteria, as a rule.

Q. And when it is introduced in the bread, it introduces bacteria, don't it? A. Yes.

1151 Q. What are bacteria?

A. Bacteria, today, are generally considered to be a form of plant life. They are very small. There are various kinds of bacteria. They are considered as plants. They used to be considered as animals.

Q. Yes,—little bugs? A. Yes, if you wish.

Q. And they look, now, just like they used to, don't they?

A. But we didn't quite understand them, at first.

Q. In order to get a more euphonious term, you call it plant life, so as not to scare people?

A. No, that hasn't anything to do with it. These gentlemen who were working on bacteria, as I understand it, first

thought that they were little forms of animal life, but, today, there is no question but what it is a form [a] plant life.

Q. But it is the form we have known all our life as a little animal, like insects, and bugs? A. Yes.

Q. Now, that is produced in the bread. What is that for?

A. What does the yeast do to it?

Q. Yes.

A. The yeast has two enzymes in it,—

Q. Now, please tell the jury what you call an "enzyme", will you. Let's see if we can understand these things while you are on the stand. I don't want to go over this with anybody else. I believe we can get it from you.

A. All yeast contains two organic substances, in which we know there are enzymes, at any rate two, and may be more, but we know of two, at any rate, today, one of which begins to convert the starch of the flour, ultimately, for instance, into a sugar, and the other one of these converts that sugar into alcohol and carbon dioxide. The carbon dioxide causes the bread—it is a gas, and it causes the bread to swell up, and we see the little open pores filled with the carbon dioxide.

1152 Q. That means, the bread rises? A. Yes.

Q. Certain amount of bacteria—

A. (Interrupting) I am speaking of enzymes, now, two separate organic compounds, which bring about these things.

Q. And there is gas, there, too, isn't there?

A. There is gas there formed by the action of this second one.

Q. What kind?

A. Carbon dioxide gas is the one I was speaking of a moment ago.

Q. Now, the longer you let that bread stand, the longer you have decomposition from that, also, don't you? That is, it is changing all the time, isn't it? A. The yeast is?

Q. No, I mean the bread, itself.

A. Yes; the bread is changing.

Q. Decomposing all the time?

A. Finally would rot, if you let it stay long enough.

Q. Now, when you eat it, masticate it and put it into your stomach, that is a process of decomposition, also, isn't it?

A. Some decompositions would begin, yes, when it goes in to the stomach.

Q. Begin immediately? A. Yes.

Q. When it reaches the gastric juices it evolves more readily into decomposition, and passes off through the alimentary canal, and through the bowels, and out?

A. Part of it is absorbed in the intestinal tract, of course.

Q. I am talking about that part which goes through the alimentary canal? A. Well.

Q. Some of it is assimilated, to form the blood? Is that right? A. Yes.

Q. And the muscle?

1153 A. Yes.

Q. And tissue? A. Yes.

Q. And the brain? A. Yes.

Q. And that is distributed by the blood, isn't it?

A. Yes.

Q. And, in the meantime, the blood throws off any impurities that are in it?

A. Yes; certain things, like carbon dioxide, which, being formed by other decompositions within the body, would be exhaled.

Q. And other impurities are [omitted] through the pores of the body? A. Yes.

Q. And then, after that part of it which goes through the alimentary canal has passed away, it fertilizes the ground, don't it, and comes right back in a cycle? A. Yes.

Q. And that is the way with everything that is in life?

A. Certain things; yes.

Q. That is the way these things progress?

A. Yes, certain of these cycles—

Q. (Interrupting) Now then, Doctor, when ascertaining the chemical analysis or chemical component parts, I might call it of wheat, or flour, or bread, or anything, as we have traced it from the seed up to the time that it is evacuated through the bowels, you will get the results as shown by the chemical action at the specific time that you make your test?

A. You would be getting the end products of it, yes, just as they have taken place in a million years, perhaps.

Q. And that might be done in one minute, two minutes, or five minutes?

1154 A. It might be slightly different, but it would depend on—

Q. (Interrupting) Well, all we know is, you can catch it as you go along?

A. Yes; but, after we learn certain things, we can predict what it will do, absolutely, at a future time, or what it has done in the past.

Q. You think, by observing it, testing all the way along, you can tell by the tests at one time what will happen at a future time, and what has happened before?

A. In certain connections, we could follow that nicely. We could do that.

Q. Now, I believe you stated that nitrogen peroxide was used to destroy certain organic compounds?

A. Yes. If you wish me to elaborate on that—?

Q. No, I don't care about that. Now, are there any organic compounds in our system, in our stomach, and in the alimentary canal, the bowels?

A. Yes. There are large numbers.

Q. Large numbers? A. Yes.

Q. Innumerable? A. Yes.

Q. Now, some of those organic compounds are there for the purpose of restoring the tissue, and blood, and all that sort of thing? A. Yes.

Q. And some of them are of no use, at all, aren't they?

A. Yes.

Q. Now, how do you get rid of those that are of no use, at all?

A. Well, I don't know whether we ever do get rid of them. The body excretes some of them, of course. It may be it doesn't get rid of certain ones, and that they act in a deleterious way. That is why, if you get some nitrite of potassium, or arsenic compounds into your stomach, you
1155 might say the body ought to get rid of them, but it can't do it, always.

Q. But it does, some of them?

A. It may get rid of part of them.

Q. And this nitrogen peroxide is one of the ways you get rid of some of them, isn't it?

A. Unfortunately, it gets rid of the very ones that are needed.

Q. And that is the chemical conclusion which you come to, but that it may get rid of some of them that are not needed, don't you think?

A. I wouldn't say. It may be, of course, and it may not.

Q. Now, you say if you put nitrous acid on your hand, that it eats the skin?

A. Yes. It would be very irritating. I think I said nitric, in my testimony.

Q. I mean nitric.

A. I understand that you are speaking of nitric acid.

Q. Now, nitric acid on the hand will burn the hand?

A. Yes.

Q. Now, you don't mean to say that this flour, or any element in this flour, put on your hand, would burn your hand, would it?

A. I mean to say this, that the flour has in it nitric acid, and that that is decomposing the flour, in smaller quantity, perhaps, than it does the flesh, but that it is acting upon the flour, say in proportion to the amount present, just exactly—or, not entirely exactly, but in a manner analogous to the

action of a concentrated acid on your hand. It is simply a question of amount.

Q. But you wouldn't say that putting your hand right into the agitator of this mill that you saw, you wouldn't expect it to burn your hand, would you?

A. Well, let me ask something—

Q. Or, taking this flour out of the agitator, you wouldn't expect it to burn your hand, would it?

1156 A. Not the flour, directly, but, if I were to take—I could take enough flour, and get the nitric acid out of it, and then burn my hand with it, if much concentrated.

Q. How much flour would you have to take?

A. It would depend on how much it was bleached.

Q. Suppose there is 1.8 parts per million, how much flour would you have to get, Doctor, to burn your hand?

A. Well, if you don't want me to engage in any mental gymnastics here,—you can understand you can take as much flour, and get as much nitric acid, as you want, and take the nitric acid—

Q. (Interrupting) Supposing that is 1.8 part per million, how much flour would it take to get enough of this nitrogen peroxide out of it to burn your hand?

A. Well, we can illustrate that this way. One drop of concentrated nitric acid, put on your hand, would begin to burn it, right at once.

Q. How much flour would you have to have to get one drop of nitrogen peroxide, or nitric acid?

A. Suppose that you put one gram on the hand, or 9-10th of a gram. If your flour has the equivalent of 9-10ths of a gram of nitric acid in a half million—you said 1.8 to a million?

Q. Yes.

A. That would be 9-10ths to a half million. You would have to have about half a million parts of flour to make that 9-10ths acid, and that would burn your hand.

Q. Now, do you know whether nitric acid is used as a medicine, or not? A. No, I don't know.

Q. You don't know? A. No.

Q. Don't you know that—

Mr. Butler: (Interrupting) He is not called as a medical man.

Mr. Scarritt: I understand.

1157 Q. Don't you know that the dispensatory of the United States of America lays down the formula of nitric acid, as a medicine?

A. It might, and might not, I don't know. I would rather not go into that phase of it.

Q. You don't know that? A. No.

Q. Haven't you ever heard of it being used that way?

A. I have heard of potassium nitrate; yes.

Q. Have you ever heard of it being used as an antiseptic?

A. I don't know.

Q. How?

A. I should think, if it is, it is due to the fact that it does kill life.

Q. And it is used as a digestive medicine, in indigestion?

A. I don't know whether it is, or not.

Q. Now, Doctor, if this flour had the amount of nitrite, or nitric acid in it, that you have stated, here, in your experiments, it would not be flour, at all, would it?

A. Now, let us recall the experiment in which I used nitric acid, corresponding to 33 cubic centimeters nitrogen peroxide per kilogram of flour, that would correspond to a flour, bleached with just that amount. I made the experiments under conditions so I would have a flour corresponding to that. I should say that they would be very closely analogous to flour bleached. I would say it was very close to the other.

Q. Now, flour, itself, is not bread? Flour, itself, or gluten, itself, are not digestible? A. They are not bread.

Q. And they are not digestible?

A. They haven't been made into bread.

Q. They are not natural foods?

A. Well, they would perhaps be natural foods for cows and horses and I imagine that people could live very nicely on the flour, if they had to. We eat corn, right along.

1158 Q. Don't you know that if you put flour into your stomach, it will act as a poison, and cause you to vomit?

A. I don't know whether that is true. I suppose it would depend on how much you took.

Q. Now, I was asking you, awhile ago, where you found these nitrites. We find them in the water, you say, and the rain water, and the melted snow?

A. I didn't say anything about melted snow.

Q. Well, are they?

A. You would find them there, I should think.

Q. Don't you know that they are there in rain, without any special electrical disturbance, although it may be greater in an electrical storm?

A. You mean by that, could you find them in rain, even though you had no electric discharge around there?

Q. Yes.

A. Well, I might say that you could, if there were nitrites in the air, formed by some other electric discharge that had gone on before it.

Q. Do you find that in saltpetre?

A. Nitrites, or nitrates?

Q. Nitrites?

A. The saltpetre is potassium nitrate. The ordinary saltpetre, potassium nitrate, if it is pure, it has no nitrites in it.

Q. Well, the saltpetre that is put on meat, to cure it?

A. It depends entirely on how pure it is. If it is pure saltpetre, it would not have.

Q. Well, don't it produce nitrite when you put it on?

A. It is not the KNO_3 —

Q. (Interrupting) I am not asking you about KNO_3 .

A. Pardon me. The potassium nitrate?

Q. I am talking about the ordinary saltpetre, that we use customarily to preserve meats.

A. I don't know that it does.

1159 Q. Well, isn't it found in our urine? Do you know Prof. Benz Jones, and his works?

A. I know the gentleman who was here in the trial. Do you mean him?

Q. No, that is not the one.

Mr. Butler: That was Hamilton P. who was here.

The Witness: No, I am not acquainted with this one.

By Mr. Scarritt:

Q. So, nitrites, as such, pass through our system, and are found in the feces, and the urine of the human being?

A. I would rather not testify to that. It is a medical subject and I am not— I shouldn't be surprised if you did. The body would probably try to get rid of them.

Q. And don't you know that Neumeister says that these are found in the human body, and that the presence is accounted for by eating vegetables?

A. Found in man? I would rather not testify on that.

Q. They are found in vegetables, aren't they?

A. You might find them in certain kinds.

Q. They are in starch?

A. They are added to the starch by the bleaching process.

Q. Well, if they are added by air, they are, aren't they?

A. Yes; that would be true.

Q. It can be added by the air, can't it? In Royal baking powder, aren't they?

A. I don't know whether they have been put in Royal baking powder, or not.

Q. Doctor Price's baking powder? A. I don't know.

Q. And ham? A. I don't know.

Q. You don't know? A. No.

Q. Haven't you examined ham?

A. No, I haven't examined ham.

1160 Q. Examined bacon?

A. No, I haven't examined them chemically.

Q. And sausage? A. No. I haven't examined those.

Q. Now, Doctor, arsenic is a poison, isn't it?

A. Yes. Certain forms of it are very poisonous.

Q. And if you take a lethal dose of arsenic, it kills you, don't it?

A. You could take enough to kill you, of course. People die from arsenic poisoning right along.

Q. Yet the human system generates a certain amount of arsenic every day, don't it?

Mr. Butler: We desire to note an objection to this. This gentleman was not qualified except as an analytical chemist, and I think the cross-examination should be confined, at least, to the subject of the gentleman's research, and not go into medicine, and surgery, and pharmacy, and veterinary work.

The Court: Oh, I think so, Judge Scarritt. I think you are cross-examining him in a field that he was not called upon, and cannot testify.

Mr. Scarritt: Well, he can say so, if your Honor please.

Mr. Butler: I scarcely think it is for the witness to make objections.

Mr. Scarritt: I just want to ask him a few questions on that.

Mr. Butler: I know you haven't urged greatly on that, but I think we will insist upon our objection, that the cross-examination be confined to the subject concerning which the witness has qualified as a witness.

Mr. Helm: If your Honor please, he has testified concerning poisons, hasn't he?

The Court: I have decided it some time ago.

1161 By Mr. Scarritt:

Q. You spoke of hydrochloric acid, Doctor. What is hydrochloric acid?

A. Hydrochloric acid is a substance formed by the chemical union of hydrogen and chlorine, as we know it in commerce. I might say that pure hydrochloric acid, is a gas, at ordinary temperatures, under ordinary conditions, and the commercial article is simply a water solution of this gas.

Q. Where is it found?

A. We make it chemically, ordinarily.

Q. Well, isn't it found naturally, somewhere, too?

A. Well probably. Not in any appreciable quantity; it would act immediately upon most of the things surrounding it.

Q. Isn't it naturally in the stomach?

A. Oh, yes. Sure. I thought you meant outside the body.

Q. No, I mean in the human system. You find it in the stomach, do you not? A. Yes, it is present in the stomach.

Q. Now, how much of it is secreted in the stomach, say in 24 hours?

Mr. Butler: That is objected to as not cross-examination, may it please the Court. This witness is not a physician.

The Court: He may answer this question.

A. I don't know. I would rather not answer that question.

By Mr. Scarritt:

Q. Would you say as much as an eighth or a half an ounce?

A. As I say, I would rather not go into that. It is a subject that I did not take up in here.

Q. Well, whatever that is, if that was put on the hand, or in the mouth, that would burn the hand, or burn the skin in your mouth, wouldn't it?

A. If it were in concentrated state it would, certainly.

Q. Well, if what is in the stomach in one day were put on your hand, or taken in your mouth, it would take the skin off, wouldn't it?

1162 A. If it were concentrated. I don't know whether it would if it were in the natural state. If one should vomit, for instance, and the vomit were to get on his hand, I don't know that it would burn it.

Q. That is an acid that is used as medicine?

A. The hydrochloric?

Q. Or nitric. A. You say it is. I don't say so.

Q. I thought you testified it was?

A. But, mind you, I am not testifying in regard to whether or not nitric acid is used as a medicine, either in concentrated or dilute, or any other state. I want that clear.

Q. How is that?

A. I am not making any testimony with reference to whether nitric acid is used as a medicine in the dilute, or the concentrated or any other state.

Q. But you are speaking of nitric acid, and its effect upon the human system by reason of being in this flour, aren't you?

A. When I testified with reference to the action of the nitric acid on the mouth, and on the hand, I simply told of facts that anyone can see, which I, myself, have seen, that the concentrated nitric acid produces certain effects, and I gave no testimony with reference to whether or not it was used as a medicine.

Q. And you say to this jury that you don't know what effect those acids would have, if taken as medicine, or what effect the same acid would have, if held in the mouth, or put on the hand; if taken in the stomach?

A. I should say, as I said before, that if you took concentrated nitric acid, as a medicine, attempted to take it into your mouth, that it would eat the lining out of your mouth, just as I said before, and I do not think any physician would give concentrated nitric acid as a medicine.

Q. I don't think so. And that was what you were talking about, and not the nitric acid in this flour—is the concentrated form? A. Yes. That is what I said.

1163 Q. Now, you do not pretend to say that that concentrated form is in this flour, do you? A. No.

Q. And you do not pretend to say it is in the bread that is made out of this flour? A. No.

Q. Then you were talking about either something that was not in the flour, or an additional amount of what was in the flour, according to your idea of what was in the flour?

A. Yes. I was speaking, in the experiments, of the action of this diluted nitric acid in the flour, and I gave the results of the action of that diluted nitric acid, or merely nitrous acid, in the flour.

Q. In concentrated form, and not of the acid that was in the flour?

A. The acid in the flour, of course, would be there in small amount. There would be a decomposition; it would decompose the flour in the manner I have indicated.

Q. Certainly decompose the flour? A. Yes.

Q. But, when you said nitric acid, you were not speaking of the nitric acid in the flour, were you?

A. I was speaking of nitric acid, but I don't mean that if you put flour on your hand, it would eat it up.

Q. Or, if you put the nitric acid that was taken from the flour on your hand, you think it would eat it?

A. I mean if you would take nitric acid out of the flour, and concentrate it in the amount that you brought out, yourself, then that would act upon the hand that way.

Q. In sufficient quantities? A. Yes.

Q. But that nitric acid which you found in the flour wouldn't do it?

A. No. That is too dilute. It decomposes the flour far more slowly than a large amount of concentrated nitric acid, —for instance, here,—would do. But it would decom-
1164 pose it, nevertheless.

Redirect Examination

By Mr. Butler:

Q. What would be the effect of pouring ordinary nitric acid of commerce on flour?

A. I have done experiments like that, and the effect would be to decompose the flour. It, itself, would be partially decomposed, and these peroxides—nitrogen peroxide, would be formed.

Q. What was it that burst that bottle, here, when you went on the stand?

A. It was the action of nitric acid present, and the gas that was formed by the action of nitric acid on the flour. Now, that same action goes on in the bleached flour, of course, to a smaller extent, but it goes on just the same, and it keeps going on as long as the substances are there.

Q. Some of Judge Scarritt's questions suggest to me the propriety of asking you to tell us the difference between chemical combination and a mixture. Are the nitrogen and oxygen of the air in chemical combination, or are they simply in a mixture? A. They are simply a mixture.

Mr. Scarritt: He said they were free.

Mr. Butler: But you didn't seem to know how, if the hydrogen and oxygen were not poisonous, and the oxygen and nitrogen in the air were not poisonous, how it happened that nitric acid would be poisonous. I thought that was what was running in your mind, Judge, and that leads to my question.

Q. How is the water?

A. It is a compound of hydrogen and oxygen, two equivalents of hydrogen to one of oxygen.

1165 Q. Now, practically all organic matter, or most of it, consists of carbon, hydrogen, oxygen and nitrogen, in various combinations? A. Yes. Most all.

Q. Now, these substances, nitrogen and oxygen, which are mixed together and form the atmosphere, are, in various compounds, the most poisonous things known, are they not—well, I will say the strongest acids known?

A. Yes. Hydrogen and nitrogen and oxygen, for instance, form two acids, nitric acid and nitrous acid, for instance, and nitric acid is one of the most active acids we have in combination.

Q. Any combination, such as of the hydrogen from the water, and the nitrogen and oxygen from the air? A. Yes.

Q. And, when you put that on a substance like flour and enclose it, it would generate so much of this poisonous NO₂ gas that it bursted the bottle there, by the stand, this morning, didn't it? A. Yes.

Whereupon Court adjourned to 10 o'clock a. m. June 15, 1910.

1166

Morning Session.

Kansas City, Missouri, Wednesday, June 15, 1910.

Court met pursuant to adjournment, and the further hearing of this cause was resumed as follows:

On account of the illness of Mr. E. P. Smith, of counsel for claimant, the further hearing of this cause was adjourned until tomorrow, Thursday, June 16, 1910, at 10 o'clock A. M.

Kansas City, Missouri, Thursday, June 16, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

Otto Folin, called as a witness on the part of the libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Where do you live, Dr. Folin?

A. In Boston, Brookline, Massachusetts.

Q. Speak distinctly, Doctor, this room is a little hard to make yourself heard in. What is your profession and occupation?

A. I am professor of biological chemistry in Harvard Medical School, Boston. I have a cold, that is why I cannot speak any more distinctly.

Q. Have you made any particular study or research in respect to bleached flour by nitrogen peroxide gas mixed with air? A. I have not.

By the Court:

Q. You say what?

A. I have not; I have made no experiment.

By Mr. Butler:

1167 Q. You may state in detail your education and professional experience.

A. I was graduated from college in 1892, and the following year studied chemistry, chiefly organic chemistry for four years, at the University of Chicago. Then went to Europe and studied physiological chemistry for two years. Then came back and after doing odd jobs around Chicago for about a year I was made assistant professor of analytical and physiological chemistry of the University of West Virginia. At the end of a year I was called to the McLean Hospital in Massachusetts as a research chemist, a position which I held for seven years, until I was called to my present position in Harvard Univer-

sity. I have published numerous papers in this country and in Europe on my researches in the field of physiological and organic chemistry. I am a member of the American Medical Society, of the German Chemical Society of the American Physiological Society, of the Society of Experimental Biology and Medicine, and of the American Society of Biological Chemists.

Q. What is biological chemistry?

A. Biological chemistry is the science which deals with the materials which enter into the makeup of living things, and of the chemical processes, the chemical changes, which those materials undergo under the influence of the living organism. Biological chemistry is divided, particularly speaking, into two large divisions, the chemistry of plants and the chemistry of animal life. My own specialty is chiefly concerned with the chemistry of the animal body and the chemical processes which substances undergo in the animal body, more particularly in the human body.

Q. And your work—present work, has to do then, with the effect, with the chemical change which take place in the human body? A. Yes, sir.

Q. Are you familiar with the substance known as nitrogen peroxide? A. I am.

Q. You may describe it.

A. Nitrogen peroxide, under ordinary conditions is a gas of varying color, but usually dark red to the tint of brown.

Under pressure or when cool it becomes a liquid, a liquid 1168 which also has different colors, at different times, but is usually yellow, covered with a red gas which is not liquified by the oven.

Q. Now, how is this gas turned into a liquid or made liquid in form, how is that done?

A. It is very easily done by passing the gas, nitrogen peroxide, into a freezing mixture of ice and salt, just as you make ice cream; the gas liquifies in a glass vessel immersed in the freezing mixture and the glass can be sealed and it is kept in the liquid gas, it is incapable of expanding. A better way of cooling it is a mixture of carbon dioxide and ether, by means of which the gas is thoroughly cooled down to where it is converted into liquid form.

Q. Now, is there any difference in its substance or its chemical properties, depending upon the manner in which it is made? A. There is no difference.

Q. What are the ways or some of the principal ways in which this gas is produced?

A. Nitrogen peroxide can be produced in a number of different ways, but the principal or most of them is the same, namely, the use of nitric acid. By the action of nitric acid on

metals the gas nitrogen peroxide is in most cases produced. You may choose different methods, different metals, but the methods thereby involved are essentially the same; also you can produce it by taking the salt nitrite and treat it with any acid; in that case you don't have to use nitric acid, and the resulting nitrogen peroxide is produced by decomposition of the nitrites. The same process, of course, is produced by the electrical spark, but that is a process with which I am not practically familiar.

Q. Now, is this nitrogen peroxide gas a bleaching re-agent or agent? A. It is.

Q. Have you yourself ever observed the bleaching properties, if that is an accurate expression, of this substance?

A. I may say that I have a great many times, but only in small experiments of the kind that is given to chemical students, and later by the teachers for demonstration purposes showing other students how nitrogen peroxide bleaches various substances.

1169 Q. Well, will it bleach various substances?

A. It will.

Q. As for example—

A. Well, in ordinary laboratory experiments you would use a flower or a leaf or a piece of printed calico, or something of that sort, a large number of substances are bleached with this nitrogen peroxide.

Q. Now, upon what, in your opinion, does this bleaching power of the NO_2 gas of nitrogen peroxide depend?

A. It depends upon a mixture of nitrous and nitric acid produced, whether the nitric acid is the only cause of the bleaching or whether the nitrous acid takes part, in that, I am not prepared to say.

Q. So that the nitric and nitrous acid together, or one of the other of them acting, becomes, in your opinion, the bleaching agent? A. It does.

Q. Now, is the bleaching process the same or different in case the bleaching is effected by the NO_2 gas, that is nitrogen peroxide, or effected by nitric acid and nitrous acid?

A. The bleaching process is the same because nitrogen peroxide as such does no bleaching, at least that is my opinion, that it does no bleaching because, if you lead absolutely dry nitrogen peroxide into contact with the coloring matter, that color matter is not bleached, so that a certain amount of moisture is necessary, and it is because under the influence of that moisture that the nitrogen peroxide is converted into nitrous and nitric acid that the bleaching takes place.

Q. Now, is there any difference in effect upon the substance bleached, whether the NO_2 is used as gas or whether the acids are used?

A. There is no essential difference in the effects.

Q. Does that hold true in case of bleaching of flour, is the effect the same, in your opinion, or different?

A. In the case of flour, as in all other cases, the effects are the same.

Q. And I understood you to say that the source of the NO₂ would make no difference, whether made from nitric acid, for example, or by means of the electric flaming arc?

A. It makes no difference.

1170 Q. Now, it appears in evidence here, and you may assume the fact to be for the purpose of expressing your opinion, that when flour has been subjected to the bleaching medium employed by the Alsop process for a considerable period of time, that that flour turns yellow, described by some witnesses as a sulphur yellow, by others as an orange yellow, and by others as a bright yellow, various terms have been used to indicate the appearance of the flour that has been subjected to the point, we will say, of over-bleaching. Can you tell us what effect is produced in the flour and what takes place there by such treatment?

A. In the so-called over-bleaching of flour by means of which the flour is made to turn yellow there has been produced a class of substances known as nitro bodies—nitro bodies—these substances are usually yellow, though some of them are not yellow; in the over-bleaching of flour these are produced by the action of nitric acid on the gluten and the protein. I have made here a large amount of such nitro bodies by mixing flour, instead of with water, with dilute nitric acid to hold eighty parts of flour to fifteen parts of water. At the end of two days this substance had assumed this characteristic yellow color, and it is due to the nitro bodies, and these nitro bodies are characterized by having the NO₂ group, formally fastened to the gluten molecules. The NO₂ is strongly attached to the gluten and cannot be removed without completely destroying the substance.

Q. The substance that you show the jury is contained in a little beaker, and we will have it marked.

A. I am not sure whether that would lend itself to the permanent exhibit unless it is closed. I have kept it covered all the time.

Q. The color will pass from it?

A. The color will grow deeper.

Q. Lighter or darker? A. Darker.

Q. As time goes on; it is already true on the surface, is it?

A. Yes, sir.

(The beaker referred to by the witness was marked
1171 "Government's Exhibit 47").

Mr. Butler: Exhibit 47 is offered in evidence.

Q. What change in color will take place in the contents of that beaker, Exhibit 47, if it is exposed to the air and by lapse of time?

A. It will tend to grow more and more dark yellow, although I don't believe that the change will be very much more pronounced than it already is.

Q. Are these compounds spoken of as nitro compounds identified by any division into classes?

A. Well, the nitro bodies together make one class of organic compounds. They are then subdivided into a number of different classes, especially into two large classes, but I should say it would go beyond the jury to go into those classifications.

Q. But they are divided into other classes?

A. Yes, sir.

Mr. Elliott: You might include the lawyers too, Doctor.

Mr. Butler: Yes, I have no doubt it would go beyond me.

Q. Now, is this yellow re-action or yellow color produced by the nitrous acid in the flour the same as has been spoken of as the [zanto]?

A. The [zanto] protein re-action.

Q. And that means what?

A. That means the yellow color produced by the action of nitric acid on all protein substances, that is, on all the characteristic substances contained in the flesh of animals, in the protein of milk, in the protein of egg, and in the protein of vegetable substances as well, so in this case it is the action of the protein of the flour, which we call gluten for short, although that stands for a mixture of different proteins.

Q. Have you yourself ever seen any flour which was over-bleached? A. I have.

Q. Giving the [zanto] protein re-action?

A. I have, but not giving any color as pronounced as what I have prepared there myself ; the flour which I saw was only a little yellow.

Q. Where did you see it, Doctor?

A. Well, upstairs in the laboratory.

1172 Q. Did I get your answer, you said the flour which you saw was only a little yellow?

A. Only a little yellow, and I saw it upstairs in the laboratory upstairs.

Q. How could you know that it was over-bleached flour?

A. I would not have not known it was over-bleached except by comparing the substance which was bleached but was not so-called over-bleached; by comparison with the bleached flour I could readily observe that the one had been bleached farther

than the other, and thereby it became correspondingly more yellow.

Q. Now, you say that the over-bleached flour which you saw was not so yellow as the contents of Exhibit 47. Why was that?

A. The reason for that, in my judgment, was only because in the bleaching of that flour there was less nitric acid in proportion to the amount of flour used, than I employed in my production of the yellow flour in the way in that exhibit.

Q. Now, in the employment of nitrogen peroxide gas dilute with atmosphere as a bleaching medium, can you from your knowledge of the laws of chemistry and of the chemical powers and characteristics of these substances tell us whether or not the chemical actions taking place in the case of bleaching are the same in kind though they differ in degree, as the chemical actions which take place upon treating flour with nitric acid as you did this flour which is contained in the vessel marked Exhibit 47?

Mr. Elliott: If Your Honor please, I think I ought to object to that. My objection was simply based on the witness's admission that he had not made any experiments whatsoever with bleached flour, as I understood it, and therefore he could not make any comparison.

The Court: I assume that the laws of chemistry are fixed, exact, certain, so far as known by scientists. He may answer the question.

To which ruling of the court claimant then and there duly excepted.

A. In my judgment in the bleaching of flour with 1173 nitrogen peroxide it is inevitable that nitro bodies such as are present in that Exhibit 47 must be formed, and this difference between the over-bleached flour and the merely bleached flour, the nature of the case, in my judgment, is only one of degree. There is more in one case than in the other, but they are there in all cases when flour has been bleached with nitrogen peroxide gas.

Q. Now, why do you say that; what are the reasons upon which that conclusion rests?

A. That conclusion rests, in the first place, on the inevitableness of the action of nitric acid on the gluten of the flour. There must of necessity be several thousand times as much gluten in flour as there is coloring matter in flour consequently, it follows as a matter of necessity, that several thousand times as much of the bleaching agent will strike the gluten as will strike the coloring matter in the flour; the small proportion of the nitrogen peroxide which strikes the coloring

matter will bleach that coloring matter, will destroy it, render it colorless, in the meantime other parts of nitrogen peroxide strike the gluten several thousand times, such strike the gluten and produce a yellow color, so that in this bleaching process, in my judgment, and I have made no bleaching experiments with flour, but, in my judgment, while you bleach the coloring matter that is there, you at the same time introduce another yellow coloring matter.

Q. Generally speaking, what is the color of these nitro compounds?

A. Most of them are yellow, though some colorless ones are known.

Q. Now, it has appeared in evidence in this case, and you may assume, it to be the fact, that the natural color of flour while it generally presents the appearance, roughly speaking, of whiteness, is a yellowish white, and that the yellowish white color in the flour is made up of two primary colors, yellow and orange in varying degrees, and it further appears, and you may assume the fact to be that upon the treating of flour by the Alsop process the appearance of the flour until it becomes over-bleached, as it is described, is made whiter; now,
1174 what takes place, according to the laws of chemistry, upon the yellow color and upon the color which are natural to the flour and found in the wheat itself?

Mr. Elliott: We make the same objection as previously, that the witness had made no experiments with bleached flour.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. The proportion of the action of the nitrogen peroxide would not depend on the character of the color, but the same amount of nitrogen peroxide acting on the one hand on an orange color, and on the other hand on a yellow color, will produce more visible change on the orange color, that is a deep orange color being destroyed in the same amount as the yellow color will be equal to having destroyed more color without an equal amount of coloring matter; that is, colors differ very much in the intensity of color which they carry with them, but a deep color is destroyed as easily as a light color. Now, the effect in bleaching a mixture of these two colors would be that at first the color of the flour would seem to be very greatly lightened because the orange coloring matter if such be there in the flour, being destroyed, very readily would seem to result in a very much lighter shade of color; on the other hand

the absorption of the yellow coloring matter in the flour would seem to produce very much less effect on the flour because the color itself is less deep.

Q. Now, why is it that as the treatment progresses of the flour with nitrogen peroxide gas mixed with air, progresses in degree of intensity, if you like, that the yellow color increases in the flour, resulting finally in the marked [zanto] yellow of the over-bleached flour which you observed in the laboratory, or the contents of Exhibit 47, which is the result of the application of nitric acid to the flour. Don't answer until the gentlemen have an opportunity to object.

1175 Mr. Helm: As I understood your former question you called for an explanation of the change in the color of the flour by natural process, and not by bleaching; that is the way I understood your question; was that correct?

Mr. Butler: The question will speak for itself, I would like to have it read.

Mr. Helm: I think that the witness is not answering the question.

(Question read by the reporter.)

Mr. Helm: I withdraw my objection.

The Court: Very well, you may proceed with this witness.

Q. What is it that makes the flour turn yellow when treated with nitrogen peroxide gas or nitrous acid and nitric acid and that yellow increase as the treatment increases?

A. By the action of the nitric acid which is produced when nitrogen peroxide comes in contact with moisture, by the action of that nitric acid is produced on nitro bodies, or proteins, that is obtained containing strength chemically bound in the molecule, these NO₂ groups obtained from the nitric acid.

Q. That is the fastening on of the NO₂ onto the gluten of the flour? A. Yes, sir.

Q. Producing the nitro bodies? A. Yes, sir.

Q. Does that thing take place in the ordinary bleaching process before the yellow to ordinary observation begins to show itself?

A. In my judgment it begins from the very first instant of the bleaching, and it is not visible; because there is yellow and orange coloring matter in the flour to begin with, but as those organic natural colors are destroyed, their place is taken to a greater or a smaller extent by these yellow nitro bodies.

Q. Is there to be found in nature any of these nitro compounds which produce the yellowness that you have referred

to as resulting from the chemical attack of NO₂ gas
1176 upon the gluten molecules?

A. Nitro bodies, so far as I know, are unknown in nature.

Q. Now, then, it appears in evidence here that flour when freshly milled, other things being alike, is not as white in appearance as the same flour will become if stored and the processes of natural aging be permitted to act. Now, assuming that to be the fact, I want to ask you whether or not in the process of natural aging any of these nitro bodies in the flour which are formed is made so by the bleaching process?

A. In my judgment, in my opinion—

Judge Scarritt: I understand he has never made a test of this; he is just simply testifying to what chemically takes place.

By Judge Scarritt:

Q. You said in your judgment you never made any test?

A. I only give it as my opinion. I said at the beginning I have made no experiments, no bleaching experiments, with flour.

By Mr. Butler:

Q. Now, so that they may not misunderstand you, your opinions are based, as I understand it, upon the laws of chemistry? A. They are.

Q. With which you are familiar? A. Yes.

Q. And the action of which you understand?

A. Yes, sir.

Q. As well as the law in gravity when that pencil falls?

A. Yes, sir.

Q. Now, go on and answer.

Judge Scarritt: I object to that as a conclusion, if Your Honor please.

The Court: What is your objection?

Judge Scarritt: The objection to the question is as to the conclusion of the witness as to whether he understands the laws of chemistry to the same extent that he understands the laws of gravitation.

A. I said some of them.

Q. You said some of them?

1177 A. I do, not all of them, lots of them I don't understand.

Judge Scarritt: I object to it as to all of them, because it is a mere opinion of the witness as to the extent of his knowl-

edge, and that is for the jury to determine from his testimony as to his qualifications.

The Court: Oh, I expect when we get down to it, neither this witness or any of us in the courtroom here know anything about the matter of gravitation except we know the result, the increase of velocity, and so forth, as first made known by Isaac Newton or somebody else. I suppose the witness has a right to say that some of the laws of chemistry he knows as he knows the laws of gravity or the result and effect of gravity. Of course I do not expect this witness, or anybody else, unless he was a roaring egotist, would say that he understands everything. He may answer.

Q. Have you in mind my question, Dr. Folin?

A. I have.

Q. You may answer it.

A. In my opinion, no such nitro bodies are produced during the natural aging of flour in the flour.

Q. Well, will any length of time in the natural aging produce, in your opinion, produce [zanto] protein re-action?

A. In my opinion it will not produce that re-action.

Q. Are these nitro compounds injurious or deleterious to health when consumed in food?

Judge Scarritt: I object to that as it has not been shown that the witness is qualified to testify to that effect.

Mr. Butler: How do you mean?

Judge Scarritt: I mean he has not qualified himself as a doctor.

The Court: He may answer the question.

1178 A. Any such nitro bodies are injurious to health.

Q. Why do you say that?

A. For this simple reason, that these nitro bodies contain the NO₂ groups, permanent in the gluten molecules of the flour. These are staple compounds. They are not easily destroyed. They are not affected by such procedures as getting the flour—by subjecting it to the action of yeast or to the action of baking or to the action of digestion but they stay in those protein molecules until those molecules get into the system where the protein molecule as a whole is broken up and destroyed and oxidized and in which case those NO₂ groups are again set free in different parts of the body in what parts, that I don't know, and there they will develop unquestionable the toxic properties of NO₂.

Q. And toxic properties of NO₂ means what?

A. Essentially the effect of nitrites and nitrous acid.

Q. And toxic means the poisonous effect?

A. Toxic means poisonous effect; poisons of course in the question of small amounts may be said to be only injurious or only tending to be injurious.

Q. Now, with respect to the degree of injuriousness or poisonousness resulting from the consumption of the nitro bodies, which you say are formed in the bleaching of flour, I would like to have your opinion as to the amount of such effect, compared with the quantity of such bodies consumed?

A. The effect will be corresponding to the amounts of these nitro bodies present in the food.

Q. Now, if it be made to appear that anybody ever became so sick after eating bleached flour bread as to need a doctor, or to go into collapse or to have any observable symptom of nitrite poisoning, or any observable change of well being, traceable to the consumption of these nitro bodies, would that change your opinion at all as to the injuriousness of these bodies on health? A. Not in the slightest degree.

Q. Why not?

A. Because the effect is in proportion to the amount present and if the amount is sufficiently small it follows as
1179 a matter of course that they escape detection, but because they escape detection that is not the slightest reason for assuming that they are not there.

Judge Scarritt: We object to this as a mere argument and cross-examination of his own witness.

The Court: Oh, I think not, you may proceed.

A. That is not the slightest reason for assuming that these toxic properties are not there, if they are demonstratively there when larger quantities are used.

Cross Examination

By Mr. Elliott:

Q. Dr. Folin, I want to first ask you what are the factors which ordinarily govern chemical re-actions?

A. The law of mass action.

Q. That is what? Just explain what that means.

A. The law of mass action, according to the law of mass action, the speed of a re-action, the extent of a chemical change taking place, depends upon the quantity of the re-acting substances present.

Q. Yes, sir. Now, in certain chemical re-actions where we know definite quantities will re-act to produce a definite compound, if you change the quantity that re-action will not occur?

A. That reaction will occur, but you will get a smaller amount of the re-acting substances.

Q. Just simply means only difference of degree?

A. Only a difference of degree in most cases; there are exceptions.

Q. There are quite numerous exceptions, are there not?

A. Yes, there are numerous exceptions.

Q. If you make a difference just in the quantity the re-action will not occur? A. Yes, sir, I should say so.

Q. Now, then, give another factor, please.

A. The temperature in reaction.

Q. The temperature? A. Yes, sir.

1180 Q. And very frequently if you vary the temperature the re-action will not occur? A. Yes, sir.

Q. And another factor?

A. The law of mass action and the temperature.

Q. Let me suggest concentration.

A. That is included in the law of mass action.

Q. In mass action you get concentration in that?

A. Yes.

Q. And pressure, to some extent?

A. Pressure, yes, pressure also.

Q. And frequently the presence of other substances?

A. Yes, sir; other substances very often accelerate re-actions in one way or another. An illustration of it we have in the subject of catalysis.

Q. So that in this subject of dealing with the chemical combining of two substances we must always take into account these factors which you have named, must we not? A. Yes.

Q. And the variation in any one of them may produce a variation in the result? A. Yes, sir.

Q. Or often produces no result? A. Yes, sir.

Q. Mostly in no chemical re-action?

A. Yes, sir; each individual case has to be decided according to the nature of the reaction involved.

Q. Concentration in all those things? A. Yes, sir.

Q. Now, I have understood you to say, I think it is perfectly plain that you have made no experiment whatever with bleached flour? A. That is true.

Q. Either by itself or as compared with unbleached flour?

A. I will say with one exception, I have looked at the color of bleached flour.

Q. Oh, yes, but I mean by experiment?

A. No experiment.

Q. Analyzing it or doing some of those things?

A. No, sir.

Q. So I just want to emphasize this from your personal observation. A. Yes.

Q. You can't say anything? A. Oh, no.

1181 Q. About bleached flour? A. No, sir.

Q. Now, then, I want to ask you as respects the gaseous medium, we will call it, in lieu of a better name, the gaseous medium, which comes from this Alsop machine, have you made any experiments with that gaseous medium? A. No, sir.

Q. Have you ever seen it? A. No, sir.

Q. Then you don't know its concentration?

A. Only insofar as I have heard testimony in this room.

Q. I am merely getting to your knowledge; you don't know its concentration? A. No, sir.

Q. You don't know the temperature? A. No, sir.

Q. Or any of those factors? A. No, none of those.

Q. So then neither as to bleached flour nor as to this process in controversy do you know anything on the basis of experimentation or of absolute knowledge?

A. Not direct on the substances involved of the flour, I mean.

Q. We, understand, of course, that you have a chemical knowledge of peroxide and gluten?

A. Which is obtained on the basis of experiment.

Q. I mean on the basis of experiment, you have not dealt with the particular gaseous medium that produced this Alsop process? A. No, sir.

Q. Nor of any flour that has been bleached by it? A. No.

Q. Now, then, I think perhaps there has been some little misapprehension about this subject of peroxide of nitrogen; first I want to ask you if it is not true that you can pick up any textbook and find that it will tell you that peroxide of nitrogen is a heavy dark brown or yellowish gas that is heavier than air and is suffocating to smell, and if enough of it is taken it is poisonous in character; that is a common textbook knowledge, is it not?

A. It says that it is poisonous in character; it does not qualify it, but otherwise your statement is correct. I
1182 have never seen a textbook that qualified the statement as to its poisonousness by saying that it depends on the amount.

Q. Well, I simply mean if you breathe enough of your peroxide of nitrogen it will kill you? A. Yes.

Q. No question about that. Now, then, take the ordinary atmospheric air containing, as I think everyone has admitted, all of the Government's witnesses, and I assume that you will, traces or minute amounts, or any amount of peroxide of nitrogen, it would not be contended that the breathing of air would produce death, would it?

A. I am not at all sure that nitrogen peroxide except occasionally and temporarily contains any nitrogen peroxide.

Q. All right. A. I mean air.

By Mr. Butler:

Q. You mean atmospheric air? A. Atmospheric air.

By Mr. Elliott:

Q. The purpose of this examination—I am not trying to get at that, that is immaterial, all I want to bring out is this: There would be, would there not, a difference between a body of air containing a minute amount of peroxide of nitrogen and the matter of concentrated peroxide of nitrogen?

A. Yes, if the nitrogen peroxide is present, yes, oh, yes.

Q. Now, then, assuming that the gas from this Alsop machine contained three hundred parts of peroxide of nitrogen to the million parts of air, are you able to say as a chemist which might occur when that volume of that gaseous medium is brought into contact with flour for a period and exposed to the flour, say for a period of twenty seconds, would be the same as substantially concentrated peroxide of nitrogen brought into contact with flour and kept in contact with it for a period, we will say, of five minutes?

A. I am able to say that the reaction would be the same in quality, but would of course differ greatly as to the quantity of re-action.

Q. Notwithstanding your statement that in all chemical reactions we must take into effect concentration and all these things you have named?

1183 A. As I understand it, your question as worded, does not involve a difference in concentration?

Q. Yes, I mean too. A. It does not.

Q. I said, assuming that this gas, that this gaseous medium coming from the Alsop machine and brought in contact with the flour contains peroxide of nitrogen, 300 parts to the million parts of air? A. Yes, sir.

Q. Now, in that dilution can you as a chemist say that the result would be the same as where concentrated nitrogen peroxide is brought in contact with the flour?

A. Yes, sir, I think the reaction would be the same.

Q. I know you may think that, Doctor; I am simply saying are you able as a chemist to say that that is the fact; you may have your opinion about it, but can you as a chemist testify to that jury that the results in both cases are identically the same?

A. Mr. Elliott, I am not testifying to anything except my opinion as to what would have happened; I have not made the experiment you speak of.

Q. Yes, but you are testifying as a chemical expert?

A. Yes.

Q. And you have said that you know pretty thoroughly some of the laws of chemistry? A. Yes, sir.

Q. Now, is this one of them that you know, the law of combination of peroxide of nitrogen?

A. I should say that, in my opinion, the same re-action would happen, but that answer you seem unwilling to accept.

Q. No, you said that to Mr. Butler.

Mr. Butler: Just wait a moment, Mr. Elliott. He has just said it to you, and you asked him then if he is willing to swear to the fact, and he tells you this is a matter of opinion with him in all respects. We have got the facts.

By Mr. Elliott:

Q. This witness and I understand each other perfectly well, Mr. Butler. I understand, Doctor, you have given your opinion very clearly as to what the result will be, and you answered Mr. Butler as to your opinion. Now, I am going further than that. You have stated here as an expert that you are familiar, and we know you are of course, with some of the laws of chemistry, and this amongst others, I assume. Now, what I want to get at from you as an expert, is in view of the factors which you have admitted, which govern chemical re-actions, and under the assumption of my question that the dilution of the peroxide of nitrogen in this Alsop machine if it is there, is in the ratio of 300 parts of peroxide to the million parts of air, are you able to say positively that the same re-actions would occur, the same effect would be produced on the flour with that dilute gas as with the concentrated gas?

A. If you will allow me to explain I shall state the evidence on which I base it. I think I am willing to state it as a fact. May I develop it?

Q. If my question is clear you can answer that and then give any explanation you like.

A. It is my judgment, I think it would happen that the re-action would be the same.

Q. You think it would? A. Yes.

By Mr. Butler:

Q. Now, explain your reason for that.

A. My reason for that is, I have made no experiments until I came here, that is, I listened to this testimony, it was brought again and again that in the bleaching process to which the flour had been subjected—

By Mr. Elliott:

Q. Just confine your answer—

Mr. Butler: Just wait a moment; we will have a ruling on whether or not he may answer.

The Court: As I understand, his testimony is that he has made no experiments but he has claimed to know, and with perfect propriety to say that he does know the general laws of

chemistry, the action and re-action, and so on, and so on, and so on. Now, then, in the question by Mr. Butler he was assuming thus and thus which Mr. Butler claims is in evidence, and by reasons of these assumptions the witness has gone on 1185 and stated what the laws of chemistry would demonstrate. Now, he is about to give the reason for it, and I don't see the slightest impropriety in it.

Mr. Butler: You may continue your answer.

A. One of the reasons that decides me to answer your question as I did, it has been brought out repeatedly that flour which is left for longer periods of time in these different parts of the bleaching apparatus, and I have never seen it, and it turned yellow; consequently there is not, in my opinion, the slightest reason why the same operation does not take place during a shorter period of time, since I cannot understand, no basis for assuming that the gas mixture is stronger because it is there longer, that is, flour subjected to the nitrogen peroxide in the pipes for two days or three days, or whatever time it may be, turns yellow; therefore that looks to me like conclusive evidence that the nitrogen peroxide in the bleaching mixture used is adequate to produce nitro bodies.

By Mr. Elliott:

Q. All aright. How do you know that flour will turn yellow if it is kept in the agitator for two or three days?

A. From the testimony produced in this case, for two or three days to a week. One witness, I don't know who he was said that they cleaned out the apparatus every week, cleaned out the yellow flour which they found there.

Q. Were you here when Mr. Ballard testified?

A. I do not remember any of the names, Mr. Elliott.

Q. Did you hear Mr. Ballard say it might take from three to four months?

Mr. Butler: He didn't say anything of the kind.

The Court: There was some witness, Mr. Elliott, that claimed he cleaned this apparatus out weekly, and at the bottom these gatherings were removed.

Judge Scarritt: The witness said he did not hear it, so that settles that.

1186 The Court: Go on, let's make progress.

A. I have answered.

Q. Now, I understood you to testify that a large number of substances may be bleached with peroxide of nitrogen. I would like to have you name me some substances that you have bleached with peroxide of nitrogen.

A. I have not bleached pure colors with chemical names attached to them; I am not a dye chemist, but I have bleached flowers.

By the Court:

Q. You mean blossoms?

A. Blossoms, I have bleached leaves; I have bleached various kinds of calico cloth, prints on them, and dyes of various sorts, but the names of those I don't know.

By Mr. Elliott:

Q. Well, I mean, for instance, did you ever try to bleach corn starch? A. No, sir.

Q. Or rice? A. No, sir.

Q. Or tobacco? A. No, sir.

Q. What effect did the peroxide have on those substances you have, leaves, for instance? A. Discolored them.

Q. Discolored them? A. Yes, sir.

Q. Made them white, did it? A. No, sir.

Q. What effect did it have on the calico?

A. Make it whiter, destroyed the color that was there.

Q. What was the other substance—flour? A. Flowers.

Q. Blossoms?

A. Blossoms of various kinds, I couldn't tell you that in detail, to undertake what I happen to have on hand at the time an experiment was needed for the class.

Q. In the sense that we are using bleaching, did you ever take any substance and make it white with peroxide of nitrogen? A. Absolutely white?

Q. Well, in the sense of using it with flour—white?

A. Well, I have, yes, I have taken calico cloth and leaves and flowers, as I say, for demonstration purposes before classes, yes, and bleached them.

Q. But no food products, as I understand?

A. No food products, no, sir.

1187 Q. Now, I understood you to testify that either nitrogen peroxide or nitric acid bleaches?

A. Either nitrous acid or nitric acid.

Q. Either, yes, that is right, either nitrous acid—well, I have it peroxide, it was nitrous or nitric acid bleaches. Now, have you ever bleached flour with nitrous acid?

A. I have not bleached flour with nitrous acid. I have not bleached flour with anything.

Q. So you would not be prepared to dispute the statement that it won't bleach flour? A. No, sir.

Q. Have you ever bleached flour with nitric acid?

A. I have bleached flour with nothing.

Q. So you would not be prepared to dispute that statement either? A. No, sir.

Q. Now, what effect, Dr. Folin, would be produced if I should put some concentrated nitric acid on the flesh—my finger?

A. I have some yellow spots right there.

Q. Turn it yellow? A. Yes, sir.

Q. And if you would put concentrated nitric acid in flour what would be the result? A. Turn it yellow.

Q. And probably char it, would it not, might it?

A. I think not; it will not char it.

Q. Turn it yellow, at any rate?

A. Well, I know it will not.

Q. Well, I think you said there was no difference in bleaching with acids or nitrogen peroxide? A. Yes.

Q. Of course we must accept your opinion as you have not bleached with acids or nitrogen peroxide? A. Yes.

Q. Also I think you have given it as your opinion that flour that is made yellow by such means as these compounds, nitro bodies. Now, will you give me the bases of your opinion for that, if you are merely speaking from your chemical knowledge you can say so.

A. I am speaking merely from my chemical knowledge.

Q. You never, as a matter of fact, ever got any nitro
1188 bodies out of flour that was turned yellow by any bleaching, or so-called bleaching?

A. Not in the sense of identifying any such products chemically.

Q. Well, that is what usually occurs when we say a thing is present, we establish its presence, isn't it?

A. Yes, Mr. Elliott.

Q. I am going to take your own expression—

Mr. Butler: Let him conclude.

A. I was going to say in the case of the production of nitro bodies with the proteids the re-action, itself, a production of the yellow color is accepted as proof of the formation of those products, consequently we do not go to work and try to identify those products by one chemical process or another, and moreover to identify the presence of small amounts of nitro bodies in a substance like flour, would be an exceedingly difficult thing; I should not venture to be able to do it except perhaps at the end of months of work, for we have no chemical re-agent for nitro bodies corresponding to the Griess re-agents for nitrates; I know of no re-agent for nitro bodies.

Q. Now, tell me, Doctor, what amount of flour did you use in preparing this Exhibit 47?

A. I used 80 grams of flour and 50 c. c.—50 cubic centimeters or 50 grams in 10 per cent nitric acid.

Q. Just explain to the jury what you mean by that, 10 per cent nitric acid.

A. A 10 per cent nitric acid solution is a solution in 100 grams of which is present 10 grams of pure nitric acid, so that in the 50 grams of nitric acid solution which are there used there was present 5 grams of pure nitric acid.

Q. Now, would that be considered a concentrated or a dilute form of nitric acid?

A. That is a dilute form of nitric acid.

Q. That is a dilute form. Now, and this, I understand—I am color blind myself—is yellow? A. It is.

Q. How would the dilution—in the first place, are you familiar with the fact that, it has been stated that the flour in this case contains 1.8 per cent of nitrite re-acting material, but just assume that that be the fact? A. Yes, sir.

1189 Q. Nitrogen as nitrites? A. Yes.

Q. 1.8. Now, could you—I don't want to put you to any mental gymnastics, as one witness expressed it, but could you conveniently tell me, assuming that the nitrous and nitric acid in this flour will you tell me how the dilution of any nitric acid that might be in here would compare with that dilution?

A. Mr. Elliott, the per cent of nitric re-acting material in flour in my opinion has not the slightest bearing on the preceding formation of nitro bodies during the bleaching.

Q. Well, I don't know as I quite understand or what reference it has to my question.

A. The subsequent analysis of flour as to seized flour, for nitrite re-acting material, has so far as I know not the slightest bearing on the question of the production of nitro bodies from the addition of nitrogen peroxide.

Q. Well, I didn't say it did, Doctor, it is somewhat difficult because you have not dealt with this flour; but let me ask you your theory. Now, just assume that this Alsop gaseous medium contains 300 parts of peroxide of nitrogen to the million parts of air and is brought in contact with the flour, what do you say occurs there?

A. I say that the gas is practically instantly absorbed by the flour there, by the action of traces of variable moisture, nitrous and nitric acid is produced and those acids are produced in what is called,—no, I was going to state something which would not hold.

Q. Stopping, however, for another question, it is just that what I wanted now, you get to the point where this gaseous medium comes in contact with the flour, and you say nitrous acid, nitric acid would be formed. Now, I just simply wanted to ask you if you would be able to estimate the dilution of any such nitric acid that would be formed?

A. Well, that will depend on a number of conditions. I imagine that on a rainy day, on a very damp day, you will have more dilute than you would on a very dry day.

1190 Q. Would you be able to say in general terms how it would compare with the dilution of nitric acid you use there?

A. That is nitric acid produced, it is an answer to your question, I think you will see, that I indicated there, this nitric acid solution produced the yellow color at the end of two days of contact with the flour, as I understand it the yellow flour can be produced in contact with the gases, the bleaching gases, within a week, consequently this acid may be partly perhaps a little stronger, how much stronger I don't know, than the nitric acid produced in contact with the flour.

Q. Well, just let's assume that I could show you some flour that had been bleached by this process and which was just as white as that jar of flour there?

A. Mr. Elliott—

Q. What bearing would that have on any opinion you might express as to the dilution?

A. As which flour?

Q. That, for instance.

Mr. Butler: That is starch from flour, separated, washed out from flour. I don't think you will see any as white as that.

By Mr. Elliott:

Q. Any white flour?

A. Mr. Elliott, I defy you to show me a flour which is pure white.

Q. No, I just mean relatively speaking, I do not claim it is absolutely white.

A. The color of the flour is not the criterion of the amount of nitro bodies that it contains because you may under-bleach the flour, in short, you may bleach it so as not to destroy all the natural color which is there, in which case you might have a yellow flour containing very minute quantities of NO_2 ; on the other hand you may produce a flour which has essentially the same color, but which is over-bleached and which would contain very much larger quantities of NO_2 .

Q. Now, let me just—what I am putting is very simple, is this: You say it has been in contact with that acid for how long?

1191 A. After it has been in contact with that acid at least a week, but the color was there at the end of a few days just as it is now.

Q. Assume at the end of two days or a week, it does not make any difference, now, suppose I bring you some flour that has been bleached by this process, and it is relatively white, whiter than it was before bleaching? A. Yes, sir.

Q. I don't care for the extent of the whiteness; just simply it is whiter than it was before bleaching? A. Yes, sir.

Q. Now, you certainly would not contend, would you, Doctor, that on the assumption that nitric acid is there it may be in any such concentration as there was there, would you?

A. I would say that the concentration which you assumed there a while ago, namely 300 cubic centimeters per million, would be sufficient to produce the yellow color in the course of time, whether it would produce that color I don't know, therefore, whether the acid is as strong as that I don't know.

By Mr. Butler:

Q. When he says that color, will you have it appear on the record he pointed to Exhibit 47?

A. 47, yes.

By Mr. Elliott:

Q. Don't let's deal with probabilities; I put a concrete case to you, Doctor.

A. I cannot state anything concerning the concentration of the acids because I have made no experiment.

Q. No, you cannot say, then, from your chemical knowledge that if I had a flour that has been bleached by this process and it is whiter than it was before, that there would not be, on the assumption that there is some acid in that flour, nitric acid, you cannot say that it would not have a different concentration also, this acid that produced that yellow flour Exhibit 47?

A. The color of the flour, I have explained, does not prove anything as to the concentration of the acid.

Q. Now, if you will just answer that question I'm going to drop it?

1192 A. Yes.

(Question read by the reporter.)

A. Mr. Elliott, I think you and I can get together.

Q. We seem to have some little difficulty. Can you answer that or not?

A. I think that I can answer it in this way, that the concentration of the nitric acid which you would find in flour at any given time after the bleaching has not the slightest bearing on the concentration of the acid at the moment of impact between the air that contains the nitrogen peroxide in that flour after a time the nitrous and nitric acid remaining in contact with the flour, insofar as they have not combined with the flour giving these nitro bodies and combining with the other material as described by Professor Acree, after a time the remaining acid will also abstract water from the flour, then it may become more dilute, and therefore would then of course

be very much more dilute than the acid present in that Exhibit 47.

Q. Now, Doctor, if I took an unbleached flour and put on it the acid in the concentration that you put on that, it would inevitably turn it yellow, wouldn't it? A. Yes.

Q. And if I put that concentration of acid in there by this bleaching process or any other process, it would inevitably turn it yellow, wouldn't it? A. It would.

Q. Well, that is all I want; perhaps I have been a long time getting at it. Now, tell me about this zanto proteid reaction, what color does that give?

A. The zanto proteid re-action gives the yellow color due to the formation of nitro bodies, nitro bodies of the protein molecules, the nitro bodies are—

Q. I only wanted the color, that was all, yellow color.

A. Yellow color.

Q. You don't understand that that is bleached flour, do you? A. It is yellow flour.

Q. You don't understand that any miller would make his flour such a color as that?

A. I am inclined to believe, without having seen that, that a miller will occasionally have small intervals of flour as
1193 yellow as that.

Q. You mean in the agitator, that has been testified to here? A. In the nooks and corners.

Q. But I mean the bleaching process as used is to make flour whiter, isn't it? A. Oh, yes.

Q. And would not a proper term for that be over-treated instead of over-bleached? A. Oh, yes, certainly.

Q. Now, tell me about this flour upstairs that you said was over-treated, if I may adopt that word now; where did it come from and how much was it treated or over-treated and by whom?

A. It was bleached in the laboratory, of course it was only shown me, I didn't see it bleached.

Q. And you don't know the appearance of it?

A. Only by hearsay.

Q. We will drop that, then; over-treated at some time?

A. Yes, sir.

Q. You don't know to what extent?

A. Well, only by hearsay.

Q. Now, tell me, Doctor, what nitro bodies you have ever formed using the dilution of nitric acid that you used in connection with Exhibit 47?

A. I have formed the nitro bodies with the gluten of flour.

Q. I mean which ones, are you able to name any?

A. Mr. Elliott those nitro bodies are not known, we don't know just which they are, and I will explain to you why.

Q. I think we are at one, but you misapprehend me, I don't mean to limit yourself to flour, but I say what nitro bodies have you ever formed of that dilution of nitric acid such as you used?

A. I don't remember whether I have formed any, in fact, I don't believe I have.

Q. You don't believe you have ever formed a nitro body?

A. Outside of the action of protein I know that they are formed.

Q. Now, have you ever formed a nitro body with any nitric acid in the dilution which would occur in bleached flour
1194 if it does occur there? A. I don't know.

Q. Isn't it a fact—well, first let me ask you, these nitro bodies that you say would be formed, how would you designate them as to a class? A. They are substances.

Q. I mean are they aromatic?

A. They are of the two kinds, aromatic and fatty kind.

Q. Now, of course, you can't say on the assumption that they are in flour, which they are?

A. Now for certain, I believe they are aromatic.

Q. Now, I will ask you, Doctor, if you can tell me, Doctor, of any aromatic nitro body that can be formed without the use of concentrated nitric acid and the concurrent use of another strong acid?

A. Why, Mr. Elliott, you have it before you in abundance.

Q. I am asking for your knowledge.

Mr. Butler: He pointed to Exhibit 47.

Witness: You have it in Exhibit 47 in abundance; I did not use any other acid with the nitro.

Q. You have given here nitro bodies. Now, I am asking you—let's put this Exhibit 47 aside for a minute—now, from your knowledge of chemistry are you able to tell me of any aromatic nitro compound that could be formed by a dilute nitric acid in the absence also of some other strong acid?

A. Yes, sir, it would form a great abundance.

Q. Now, just name me a few.

A. Well, it is a dozen years since I studied the organic chemistry and the names slipped me; there are a hundred thousand odd compounds in organic chemistry and a man does not remember those, but I will say that in phenol derivatives, substances called phenols, to which carbolic acid belongs, you can easily get nitro bodies with dilute nitric acid, nitric acid with more dilute than I have used there, and without the presence of any other.

1195 Q. What is that one?

A. Phenol, that is aromatic compounds containing hydroxyl.

Q. You understand, Doctor, I am putting these under instruction, I don't know this chemistry myself, but I want to put it to you, from dilute nitric acid you say that you can form an aromatic nitro compound? A. I do.

Q. All right. I suppose you have never washed out gluten from flour, or done any of those things?

A. Yes, sir, I teach that to my students every year.

Q. Sir?

A. I teach that to my students every year.

Q. Well, from this flour in suit?

A. Oh, no. We have the flour in our laboratories.

Q. Now, Doctor, I will ask you this question: Is flour a simple or a complex substance?

A. It is a very complex substance.

Q. Are you able to give in general terms about the number of substances it is said to contain?

A. Oh, I should say it would probably contain somewhere between a dozen and fifteen substances.

Q. I believe as high as twenty, some of them?

A. It may be found higher, it will depend on how you look at it, in a large measure.

Q. It is a very complex substance, is it?

A. Very complex.

Q. Now, I find some questions which were to be put to you about the change that occurs in the coloring matter?

A. Yes.

Q. The orange and the yellow? A. Yes.

Q. What experiments have you made with the coloring matter of flour? A. I have not made any.

Q. Then that was based simply on your general knowledge?

1196 A. It was based on the—I think it was assumed in the question.

Q. Well, it was simply on the basis,—it was not on the basis of any actual experimentation? A. No.

Q. All right, that is what I want. Now, you stated that there were no nitro bodies in natural aged flour, and I think I would agree with you, but you have not made any experiments in that regard, have you? A. No, sir.

Q. Now, then you have expressed the opinion that this bleached flour would be injurious to health, in your judgment? A. Yes, sir.

Q. Or might be? A. Yes, sir, would be.

Q. And that, as I understand it, is based on your statement that if the effects of the administration of a large amount

of a substance are demonstrable, that it follows that the use of a small amount produces the same effect but in a less degree, isn't that correct?

A. Yes, in the absence of any reason for believing the contrary to be true.

Q. Now, do you know of any substances which are considered of a poisonous character which you believe may be taken into the system in small quantities without producing harm? A. Yes, sir.

Q. Would these be illustrations: Potassium chloride, common salt, baking powder, acetic acid of vinegar, alcohol, benzoic acid and benzoate of soda? A. They will do as examples.

Q. Those things may be poisonous in large quantities, but taken in small amounts are harmless?

A. I would not be equally positive for all of those, more positive in some cases than in others.

Q. And would the basis of your opinion as to the 1197 harmlessness of a small amount, we will say, of benzoate of soda, be influenced by the fact that that occurs naturally in certain fruits or vegetables?

A. To some extent, yes, but of course that is by no means the only reason.

Q. But I believe you stated once before that you regarded that as the strongest reason, did you not?

A. One of the chief reasons, does not that expression occur there?

Q. Well, I am reading from a former deposition; I am not pinning you down to this if you say it is not correct?

A. No, sir.

Q. The question: "Q. Well?" "Yes, in fact I regard that as one of the strongest reasons why benzoate of soda, at least for occasional use, might be regarded as harmless".

A. I said as one of the strongest, and, Mr. Elliott, that is the way you put the question there, it does not quite represent the facts, it is partly that it occurs in natural substances, but it happened to be natural substances which I from childhood had been consuming myself, in very large amounts; the lawyer in the case, when I testified, pinned me down for two hours on that, so that it was partly expert testimony and partly talking as an individual from personal experience.

Q. Yes, but you did express an opinion and have expressed an opinion? A. Yes.

Q. As I read to you? A. I have.

Q. That these various substances would be harmful in large doses and perfectly harmless in small doses?

A. In sufficiently small doses.

Q. Now, what would you say as to nitrites or nitric re-acting material, on the assumption that that occurs in the saliva, and is being swallowed from infancy to old age?

1198 A. I should say that nitrites would not be one of those substances which would be poisonous in large amounts, and not deleterious in small amounts.

Q. And that opinion would be based on your knowledge of the kind of nitrites in poisonous doses, would it not?

A. It would be based on the knowledge that it is poisonous in large doses, and on the absence of any reason for believing that it is not poisonous also in small doses, the burden of proof must always be towards showing that it is not poisonous in small quantities.

Q. Now, let's assume that it has never been shown that anybody was ever injured by eating any food containing nitrites, would that not be an indication that minute amounts of nitrites are not harmful? A. It would not be an indication.

Q. Would not be an indication. Now, that as I understand it, is simply from your knowledge of the use of large amounts?

A. And of the knowledge of the limitations of our experience.

Q. Just what do you mean by that?

A. I mean by that that we are always subjected to a great many injurious influences which we do not know, with which we have not had sufficient experience to be able to gauge them exactly.

Q. Well, but we have had experience with those substances, and saliva, haven't we?

A. We haven't had any opportunity to determine how injurious the nitrites of saliva may be.

Q. But we have had opportunity of knowing as to other substances that are harmful in large doses and are harmless in other doses. Now, what is the distinction you make?

A. The distinction in that in those—in the substances which are harmless in small doses, we have definite reasons for believing that they are harmless in small doses.

Q. And you think with the knowledge that no body
1199 has been found that has been injured or been made sick or nobody has discovered that they had been in any way affected by eating foods with nitrites, on that assumption you say that would not be any indication at all?

A. No, sir, it would not.

Q. What would you say on the assumption that minute amounts of nitrite or nitrite re-acting material are taken into the system, assuming the same substance is taken in always through the saliva, what would you say as to the human system having become immune to the action of those minute amounts, or dormant to that?

A. I would say that there is not the slightest evidence tending to show that the human system has become immune to nitrites.

Q. Well, is there any evidence to show that it has not?

A. There is.

Q. What is it?

A. Because it is definitely poisonous in sufficient amounts.

Q. Other than that is there any testimony that the minute amounts of nitrites such as much be taken from the saliva has ever produced any harm?

A. Well, sir, so far as I know here cannot be immunity against one quantity and no immunity against a smaller quantity there cannot be any sharp line there.

Q. Can nitrites be oxidized? A. Certainly.

A. Can nitrites? A. Yes, sir.

Q. That is a matter of common knowledge, isn't it?

A. Yes, sir, at least that is my impression; I don't remember having oxidized nitrites to nitrates, but the—

Q. You know that is a chemical fact?

A. I presume that to be a fact.

Q. Did you ever get or observe a zanto proteid re-action in commercial bleached flour; by commercial bleached flour
1200 I mean flour in the condition after it has been bleached and sent out in the market for sale?

A. I have never seen a bleached flour in the market.

Q. Now, I want to come back just a minute to this concentration business and especially of nitric acid, as any possible compounds, you have stated that that flour in Exhibit 47 contains nitro bodies? A. I have.

From the fact that it is yellow? A. Yes.

Q. Now, does nitric acid act the same way in all dilutions?

A. In just what dilutions it would act, I don't know, just how dilute.

Q. It acted with that one? A. Yes.

Q. I want to give you the illustration that I think I gave to Dr. Mann or at least to one of those scientists. Is it within your knowledge that if you put dilute nitric acid, mix it with benzine, that it will produce no compound whatsoever?

A. It will not produce any compounds, I believe.

Q. Then if you add a higher concentration to benzine you will produce a mono-nitro-benzine? A. Yes, sir.

Q. And if you go still further and use a concentrated nitric acid, add it to benzine, you will have a di-nitro-benzine, practically different chemical substances and another combination in the third case? A. Yes.

Q. All dependent on the strength or concentration of the nitric acid?

A. Yes, sir, and you can get some more.

Q. And there would be others? A. Yes, sir.

Q. I think so.

A. But you understand, Mr. Elliott, that benzine is a substance that re-acts with comparative difficulty with nitric acid.

Q. Will nitric acid produce a nitro body from olive oil, do you know?

A. I don't think it would.

Q. Would it produce it from the oil of bitter almonds?

A. The oil of bitter almonds, I should think it would, but I am not ready to state definitely.

Q. You would not state definitely in either case, as I understand? A. No, not definitely.

Q. I want you to tell me what nitro compounds, if any, that you formed in your laboratory or any place as such, so that you could designate them and tell what they were by name?

A. I have not formed those for so many years, they do not come into our studies in physiological chemistry, except in connection with this very re-action here, the action of nitric acid on proteins and those are not sufficiently definite to be called definite compounds to which one can affix a name.

Q. Well, I want to be fair with you, I don't want to be unfair. Is the basis of your opinion about nitro compounds simply the observation of this yellow color in Exhibit 47 and other similar experiments which you may have performed, or have you made any nitro compounds at any time?

A. I have made them.

Q. You have done so?

A. Yes, but I don't now remember.

Q. You don't know now what they are or what they looked like? A. Yes, they looked like yellow.

Q. They all looked yellow?

A. I have made a meta-nitrate, amido or nitrate benzoic acid. I have published a paper, Mr. Elliott, published a paper in 1898 in which I think you will find the preparation of probably three or four new nitro compounds which had never been prepared before and which I have there described, but that is many years ago and I don't—

1202 Q. Have you made any experiments with the flour that was seized in this suit? A. No, sir.

At this point court took a recess until 2 o'clock P. M.

Pursuant to adjournment court met at two o'clock p. m., Thursday, June 16, 1910, and proceeded with the trial of said cause further as follows:

William F. Boos, called as a witness on behalf of the government, being first duly sworn, was examined by Mr. Butler, and testified as follows:

Direct Examination.

Q. Where do you live, Mr. Boos?

A. I live in Boston.

Q. And what is your profession?

A. I am pharmacologist and chemist of the Massachusetts General Hospital, and a physician, with a consulting practice, in the city of Boston.

Q. What has been your education along the lines of these subjects?

A. After receiving my bachelor's degree at Harvard College, in 1894, I went to Heidelberg, and, after two years' study there, I received the degree of Doctor of Philosophy in 1203 chemistry. I returned to Harvard, after that, and taught, there, for one year, chemistry, in the academic department. Then, I entered the medical school, and studied medicine for four years—the Harvard Medical School. After completing my course of medical study, I entered the Massachusetts General Hospital, as house physician. I served a term of eighteen months in that capacity, then, I went to Strasburg University, and studied for two years as research student in pharmacology or experimental therapeutics, which is the same thing. For two years more I was assistant to the head of the pharmacological department in the University of Strasburg. Then, I returned to America, to the position which I now hold, at the Massachusetts General Hospital.

Q. You, I think, gave testimony, by way of deposition, in a bleached flour case, pending at New Orleans.

A. Yes, sir.

Q. That was last January, I think. Prior to that time had you given the subject of flour bleaching, by means of nitrogen peroxide gas, any particular or special consideration?

A. I had not.

Q. Have you, since then, seen an Alsop bleacher work?

A. I have.

Q. Where?

A. I believe in one of the mills of the Northwestern Milling Company, Kansas City.

Q. Southwestern? A. Southwestern Milling Company.

Q. The Rex Mill. The same mill referred to by the other witnesses who were out there? A. Yes.

Q. Did you see any gas employed in bleaching, there?

A. I did.

Q. State the circumstances of that, to the jury.

A. I saw the gas as it was developed in the generator, or electrifier, by means of the flaming arc. I also saw it, 1204 as it was collected by members of our party, from the bleaching apparatus. That is, from one of the pipes leading into one of the chambers of the bleaching apparatus.

Q. That is, one of the agitators? A. Yes.

Q. Collected in flasks?

A. It was collected in flasks, or in graduated cylinders.

Q. And, under different conditions and adjustment of the machine, so as to get different intensities of the gas? A. Yes.

Q. Did you see the particular flask taken by Dr. Hulett?

A. I did.

Q. Was that dense enough so it could be seen?

A. It could be seen, yes.

Q. 300 parts to the million? In the other specimens, was it visible?

A. It was. They were very distinctly visible, the other specimens.

Q. What is the nature of this gas?

A. This gas is a compound of nitrogen and oxygen, with a formula NO_2 , or, N_2O_4 , as the case may be, depending upon temperature and pressure. There is, probably, also a certain amount of each chemical substance, present in this gas. Shall I proceed?

Q. Yes, as to its characteristics, if taken into the body by inhalation or ingestion, or otherwise.

A. It is a brownish red gas, which, upon being inhaled, acts as a powerful irritant to the mucous membranes of the respiratory tract.

Mr. Helm: Do I understand that the Doctor is speaking of this Alsop Process, now, or NO_2 ?

Mr. Butler: Well, haven't we got to the point where the Alsop gas is NO_2 , yet?

The Court: I do not hear you, Mr. Butler.

Mr. Butler: He asked whether we were speaking of the Alsop gas, or NO_2 , and I inquired whether we had not reached the point that the Alsop gas was NO_2 , yet. I thought that was conceded by Mr. Smith, at least.

Mr. Helm: I simply wanted to know what he was talking about.

The Court: I know, but Mr. Helm—I am not criticising anybody, and I trust I am not getting impatient with anybody. I am not assuming anything, but, have been waiting, now, for two weeks, to see whether you proposed to tender an issue, before this jury and myself, as to whether there is any difference in the production of this gas, whether it is by the Alsop process, whether it is by iron injected into nitric acid, or whether it is by the chemical process of nitric acid and sulphate of iron, or anything else. Now, I am not saying this now, in a spirit of criticism, but I have assumed, without

being a chemist, and largely uneducated in these matters, whether it is possible for there to be any difference, and, without commenting on this evidence, so far, I have seen no one thing to indicate to me that it is of the slightest concern how this nitrogen peroxide is brought about. Now, if you intend to raise any issue on that, it might be well for you, perhaps, to say so, now. If you do not, say so.

Mr. Helm: Mr. Elliott has answered that, but he may do so again, if he desires.

The Court: You do not intend to raise any issue on that, do you?

Mr. Elliott: I do not intend to raise any issue, if Your Honor please, that nitrogen peroxide, if it is generated in this machine, or any other way, is different.

The Court: Whether it is in the Alsop Mill, or whether 1206 it is in a laboratory, it is all the same?

Mr. Elliott: It is all the same, wherever generated, or however generated. Our contention is as to the concentration of this gas, and the length of treatment.

Mr. Butler: But you said "If it is generated in this machine". You do not deny the machine generates NO₂?

Mr. Elliott: I say if nitrogen peroxide is in this Alsop machine.

The Court: Or, NO₂?

Mr. Elliott: It is just the same as nitrogen peroxide generated chemically, or any other way.

The Court: In the laboratory, or in the mill?

Mr. Elliott: Yes, sir, it is. Not a bit of difference. We never have contended that.

The Court: That is what I am going to tell the jury, unless shown something to the contrary.

Mr. Elliott: Absolutely, nitrogen peroxide is the same, wherever made.

The Court: Then, I think we need not accumulate any further on this.

Mr. Helm: I would like to state my objection. My point was, he was stating he had been out to the mill, and had seen this gas, and went on to describe its characteristics, and said it was a dark brown colored gas. I wanted to know, then, whether he was talking of that gas, or of the Alsop gas.

The Court: Well, what is the difference?

Mr. Helm: Well, there may be a difference, as Mr. Elliott suggested, in concentration.

The Court: Well, now, you say there may be. Now, is there?

Mr. Helm: I think, in concentration—

1207 The Court: (Interrupting) Oh, in concentration, yes.

Mr. Helm: He spoke of a dark brown gas, and I wanted to know whether he was then talking about the gas he saw out there, at the mill, or NO₂ generally.

The Court: One mill, here, manufactured this gas by nitric acid, and wires of iron—soft iron. I don't know whether anybody else had testified, or not—

Mr. Butler: (Interrupting) Mr. Mitchell, testified.

The Court: But, it can be produced by nitric acid, and sulphate of iron, or it may be produced by the flaming arc, of two electrodes, such as are in the Alsop process. Now, the point I make, is, why accumulate on this subject matter, unless you intend to raise an issue about that?

Mr. Elliott: We do intend to raise this issue, if Your Honor please, that there is a difference between a body of air having a minute amount of nitric acid—

The Court: (Interrupting) I am not talking about a minute amount. I am talking about the same amount.

Mr. Elliott: Now, I say, the amount that the Alsop would have, and such as their witnesses have testified to, 300 parts per million,—there is a difference between that, and concentrated nitric acid.

The Court: I know, but, with the same concentration, same amount, it is immaterial whether produced in the Alsop, whether produced by the jug of nitric acid, or the rod of iron, or nitric acid, or sulphate of iron, or by the electrodes, or the electrical machinery. It is utterly immaterial.

Mr. Elliott: Yes, as to the nitrogen peroxide, but, whether the treatment is the same, we will take issue.

The Court: Well, I am going to so charge the jury, unless I see that there is an issue about that. I am going to tell this jury it is utterly immaterial how this gas is manu-
1208 factured, unless, later on, you are going to tender an issue on that.

Mr. Elliott: Certainly I am going to contend there is a difference in concentration, and in effect.

The Court: All right. We will wait and see what you have.

By Mr. Butler:

Q. Now, Doctor, I asked you to tell what NO₂ is, as to its characteristics, and you said, on inhalation, it was irritating, corrosive, or something like that. You may continue your description of it.

A. It is a gas which produces an irritating effect on the mucus membrane of the respiratory tract, with a consequent feeling of suffocation, and, with possibly coughing—well, coughing, without any doubt, in fact, if it is added in sufficient amount.

Q. Is it recognizable by its odor, or smell?

A. It has a very characteristic odor.

Q. Did you smell it, out in the mill, in bleaching?

A. Yes.

Q. In the ordinary operation of the machine, out there?

A. I did. It was noticeable on that entire floor where the machine was located.

Q. Now, the color of it depends upon the degree of concentration? A. Yes, it does.

Q. The more concentrated, the denser the color, and so forth? A. It is.

Q. And that was varied, in the various specimens taken in that mill? A. Yes.

Q. One, was shown to be three hundred to one thousand million, and the other was taken at one thousand to a million so far. Is it poisonous? A. It is.

1209 Q. What do you mean when you say a substance is poisonous?

A. Shall I give the definition of a poison?

Q. Yes.

A. A poison is a substance which, by virtue of its chemical constitution, produces chemical morphological molecular changes in certain organs, these changes then leading to the impairment of function in the organ or organs affected.

Q. Now, does the treatment of flour gaseous mediums such as you saw Dr. Hulett take, impart to the flour, or produce therein, any poison or poisonous substance?

A. It does.

Q. And how may they be described, by name?

A. This gas, when introduced into the flour, produces nitrous and nitric acids, in equivalent amounts, one part of each on account of the moisture which the flour contains, and which combines with the gas to form one part each of nitric acid and nitrous acid.

Q. And are those acids poisonous?

A. They are.

Q. Now, there is in evidence, here, an iron pipe, which was brought from Mr. Krite's mill, had been in use about six months, right at the agitator. I would like to have you tell the effect of passing this gas through an iron pipe—the chemical effect.

A. The effect would be one of corrosion. That is to say, the gas would attack the iron, and cause loss of a substance in the pipe—that is, a certain corrosive effect, which would cause the pipe to lose part of its substance, and, in time, it might cause the corrosion to be so complete as to eat holes, as it were, through the pipe.

Q. Now, assume the facts to be, that bread made from this flour contains nitrites, or nitrite reacting material, to the extent shown by the fluid in this tube, on Exhibit 30, which was tested in the presence of the court and the jury, I would like to get your opinion as to whether or not there has been a poisonous substance added to the bread by the bleaching of this flour that was seized.

A. There has been.

Mr. Scarritt: We object to that as invading the province of the jury, and not a proper hypothetical question.

The Court: Objection overruled.

Mr. Scarritt: Exception.

By Mr. Butler:

Q. Now, what would you call such substance—what may they properly be called by name, that was added to this bread by reason of the bleaching of this flour, up at the Lexington Mill?

A. Nitrous and nitric acids.

Q. Do the nitrous and nitric acids remain through the flour and the bread, as such, or by combination into salts, or other compounds?

A. They may be present as such, and they may be present in the form of salts, and they may be present, or there may result from the presence of those substances, organic compounds, derivatives of those bodies.

Q. Now, this nitrite reacting material, as I understand it, was shown by this test, here in the presence of this jury?

A. Yes.

Q. Now, assuming that such bread be eaten, or bread and other foods made in whole or in part from this flour, with such customary regularity and amounts as the food products of flour are usually eaten by the people, I would like to have your opinion as to whether or not the food made from this flour seized, is or may be injurious to the health of the consumers.

Mr. Scarritt: Same objection last stated.

The Court: Same ruling.

1211 Mr. Scarritt: Save an exception.

The Witness: May I answer?

By Mr. Butler:

Q. Yes.

A. I consider that injurious substances—did you ask me whether it was injurious, or whether injurious substances had been added?

Q. No, I asked you whether the customary use of it, as bread and food products, made in whole or in part from flours, are customarily used by the people; whether it would be injurious to health.

A. I think it would tend to be injurious to health.

Q. Now, how so? Give us the reasons for that faith. Give us the effect of it, in such food.

A. Because the presence of either nitrous acid or nitrites would cause these substances to be absorbed into the system, where they would exhibit the characteristic action of nitrites, or nitrous acid. Nitric acid, present either as such or in the form of nitrates, would exhibit the characteristic action of nitrates, or nitric acid. And so would the organic compounds which are formed in this flour from the action of the nitric acid, also cause injurious effects after their absorption into the system.

Q. Now, as the characteristic effect of nitrites, taken into the stomach?

A. When nitrites are taken into the system, and are absorbed from the gastroenteric tract into the blood, we observe a distinct sequence, or phenomena. First of all, there is flushing—that is what you mean, for me to give a description of the action?

Q. Of the action of nitrites.

A. First of all, there is a flushing of the face and neck, which may extend down as far as the upper part of the breast. There is also, as has been found,—it is due to a dilation, or stretching of the blood vessels of the face and neck. There is also, at the same time, a dilatation of the vessels in the
1212 meninges or lining membranes of the brain, and also of the vessels in the brain, itself. Very soon after this first flushing, there is felt an accelerated pulse in the temporal arteries, which causes us to feel a sort of hammer-like effect in this artery. This is due to the action of the nitrites on a certain nerve, which, normally, keeps the heart from going too fast. This nerve is depressed, or paralyzed by the action of the nitrites, so that it no longer controls the heart, and the heart

begins to beat more rapidly. This beating of the heart more rapidly, with the limited dilation of blood vessels in the head, neck and chest, causes, at first, a rise in blood pressure. Very soon, however, the blood pressure falls considerably, which is due to a paralysis of the vaso-motor center, we call it—that is to say, a certain center in the medulla, which controls the dilatation and contraction of the blood vessels in the body. This paralyzes this center, and there is a general dilatation of blood vessels, in consequence of the paralysis. This, of course, accounts for the great fall in blood pressure. There may be, at the same time, a certain degree of dizziness, and there may be a mild narcosis, which means a slight loss of consciousness. Patients affected by these substances may sway, or even fall, when they are under the influence of these bodies. In all cases there is a tendency to the formation of met-hemoglobin in the blood. If a sufficient amount of these substances is introduced into the system, the entire blood of the person turns a very much darker color than it normally has. Normally, the blood is bright red, the color that you know as crimson. After these substances have been introduced into the blood, outside the body, or inside the body, the blood turns to a chocolate color. Of course, the degree of this chocolate color is dependent upon the amount of these substances taken into the system. But, there will be a formation of met-hemoglobin, probably with the smallest amount taken into the body, only it would be so slight that we would not be able to detect that formation.

1213 This formation of met-hemoglobin is a very serious matter for us, because the red coloring matter of the red blood corpuscles, the function of which is to take up oxygen in the lungs, and to carry that oxygen throughout the body, and to give it up to the cells of the body, and the structures of the body that require it, loses its function. The red coloring matter can no longer either absorb or give up oxygen. Therefore, we have a lack of oxygen, a suffocation of the entire system, and death, in cases of nitrite poisoning, is caused by this suffocation of the blood through the formation of met-hemoglobin.

Q. You say that the amount of change of the hemoglobin into met-hemoglobin depends upon the amount of nitrites taken?

A. Upon the nitrites absorbed into the blood.

Q. And as to the function performed by the hemoglobin, and whether or not, by the change to met-hemoglobin, the power to perform the function is retained?

A. I have stated that the hemoglobin, or red coloring matter of the blood loses its function of carrying oxygen from the lungs to all parts of the body that require it, and, all parts require it constantly.

Q. Have you, yourself, made any experiments for the purposes of illustration, to show the effect of nitrites upon the blood of an ox, for example? A. Very frequently, yes, sir.

Q. And, since you came here, have you done it?

A. Yes, I have done it since I came here.

Q. Have you the specimens here in court, that you may show the jury. For identification, let us have them marked.

The exhibits referred to were by the reporter marked "Government's Exhibit '48' and '49'".

A. These will not keep indefinitely, because there is absolutely no preservative added to the blood.

Q. Are the contents of these little bottles, which are marked "48" and "49", respectively, quantities of blood
1214 of an ox?

A. I obtained these two specimens, by dividing a specimen of blood which I obtained from the Armour Packing house.

Q. In this city?

A. In Kansas City, Kansas, right across the line. I divided that into equal portions.

Q. Now, explain to the jury how you did it, how you treated the portions, what the difference is, and what causes it.

A. I took the defibrinated blood. When the blood is drawn from the steer, or, when it gushes out of him, the blood is whipped, to cause the clot to separate, and the clot is removed, and this results in what we call the defibrinated blood, and the corpuscles are intact. That is, they have not been destroyed in this blood. I took this defibrinated blood, in equal parts. To one I added sodium nitrite, in solution. To the other I added the same quantity of water, so as to keep the volumes the same. The sodium nitrite in the blood, gradually produced this change into a chocolate color, as we see it.

Q. That is, in number 49?

A. Yes. Which is met-hemoglobin. This (indicating) is the color of the bright arterial blood, as we call it. This is the color of the met-hemoglobin blood.

Q. And this color is, as you see, very permanent.

Mr. Elliott: Doctor, it may not be important, but would you mind giving us the quantity in each case?

The Witness: I used one part to two thousand in the blood—one part sodium nitrite, to two thousand of blood. Of course, I used a large amount, in order to make the effect very pronounced.

Mr. Elliott: I mean the amount of blood and liquid you added—the solution.

The Witness: I think my nitrite was dissolved in twenty-five cubic centimeters of what we call the normal salt
 1215 solution, and I added twenty-five cubic centimeters, also, to this, without the nitrite. The nitrite was in one, and not in the other.

Mr. Butler: Did you want him to tell the volume of the blood, before the addition, Mr. Elliott?

Mr. Elliott: Yes, that is what I wanted.

By Mr. Butler:

Q. If you can tell, Doctor. If not, approximate it. Did you measure it?

A. I did measure it, yes, but I do not remember just exactly. It doesn't make any difference.

By Mr. Elliott:

Q. Well, just about?

A. About one hundred cubic centimeters of blood, I think, I used in each case. I think it was exactly one hundred cubic centimeters. You can do it in a test tube. You can do it in anything.

Mr. Elliott: Oh, yes.

The Witness: The brown color would be turned long before the quantity I used, only I wished to make it more striking, so I used a lot—one part to two thousand. Shall I give this to the jury?

Mr. Butler: If they desire to pass it around.

(Exhibit handed to the jury.)

Q. Now, you spoke of defibrinated blood. Do the red corpuscles remain in the blood—the defibrinated blood, or do you remove the red corpuscles?

A. The number of red corpuscles which remain in the blood is dependent on the skill of the person, to defibrinate it. You can defibrinate the blood in such a way as to remove only a very small proportion of the red cells. In other words, you can get almost a colorless clot out of the blood, by whipping it the right way.

Q. But, in these particular specimens of blood, which
 1216 are offered in evidence here, are there red corpuscles there? A. They are intact.

Q. Now, what produces the chocolate color, where you added the sodium nitrite?

A. This chocolate color is produced by a chemical compound brought about by the sodium nitrite in a manner we do not know, which is called met-hemoglobin, whereas, the red

substance—the bright red substance, oxyhemoglobin, and the brown substance, is met-hemoglobin.

Q. In Exhibit 49, which I believe is the number of the chocolate colored specimen, was there produced met-hemoglobin? A. There was, yes, sir.

Q. And is it met-hemoglobin which causes the change in color? A. It is.

Q. And, as to the degree of change in color, upon what does that depend?

A. That depends upon the quantity of nitrite which is added to the blood.

Q. And does that color vary with the concentration, just as does the Alsup bleaching gas? A. It does.

Q. The denser it is, the more marked the color?

A. Yes.

Q. And, when you attenuate it, the lighter? A. Yes, sir.

Q. And, in this particular specimen which you have brought to court, here, you say you used one part to what?

A. To two thousand of blood.

Q. One part, to two thousand of blood?

A. One part sodium nitrite to two thousand parts of blood.

Q. The degree of concentration testified to by those who took that gas, was three hundred parts of NO₂, to the million, and one thousand parts to the million of NO₂.

A. I have not made any experiments to determine how sensitive this reaction is.

1217 Q. The purpose was for the purpose of illustrating and defining the change from hemoglobin to met-hemoglobin?

A. Yes.

Q. Now, the question is whether or not change of the same kind, but less in degree, would take place upon the addition of any amount of nitrites. A. There would.

Q. Now, are there some substances, Doctor, like vinegar, or acetic acid, salt, baking powder, benzoic acid, or benzoate of soda, alcohol and the like, which are common articles of use for human consumption in varying quantities, which may become poisonous upon the ingestion of appropriate quantities?

A. Yes, sir.

Q. Now, are there any substances known to your profession, falling within the definition of poison, not of that character, where the poisonous action results, same in kind, but differing in degree, where any quantity, however minute, is taken? A. There are.

Q. Can you mention some of those, aside from the nitrites we have spoken of?

A. Strychnine, atropine, heavy metals, such as lead, copper, mercury, physostigmine.

By the Court:

Q. What?

A. Physostigmine, which is an alkaloid, and many other alkaloids; chloride of lime, chlorine gas.

Q. Cyanide? A. Cyanide of potassium.

Q. That seems to be a well known poison, here. You spoke of heavy metals. What do you mean by that—salt, or metallic forms? A. In either.

Q. Corrosive sublimate one? A. Yes.

1218 Q. Paris green—is it of that character, or not? Is that a copper salt, or is it copper and arsenic combined?

A. It is a salt of copper and arsenic.

Q. How about Paris green, that is used for poisoning vermin, sometimes? A. Very poisonous substance.

The Court: How is aconite?

The Witness: Aconite, I think is the most powerful poison we know. I mean by that, aconitin, the active principle of the aconite plant.

Q. That is sometimes used for medicine?

A. No, not regular medicine.

Q. Well, aconite—the substance known popularly as aconite?

A. Is not used by the regular school of medicine, so far as I know.

Q. But it is used sometimes by the medical practitioners, for the purpose of controlling fevers, isn't it?

A. Aconite, when given internally, produces fallen blood pressure, and we do not give any substances to produce fallen blood pressure, and there is no therapeutic indication to produce a fall of blood pressure.

Q. Now, with respect to the nitrites which were taken from this bread, here, Exhibit 30. I want you to tell us in which class of substances it belongs—whether with the salt and the baking powder, and the alcohol, and the vinegar, or does it belong to the same class as these other things—corrosive sublimate, aconite, and Paris green?

A. Belongs in the [glass] of corrosive sublimate, strychnine, aconite, and Paris green.

Q. Now, as to the degree of injuriousness by the consumption of bread containing such nitrites. Upon what does that depend?

1219 A. It depends upon the quantity of nitrites which are present in the bread.

Q. Now, you told us that nitrates were produced in the flour by the action of the nitric acid, distinguished from the nitrites produced by the action of the nitrous acid. I would like to have your opinion as to whether or not these nitrates, so produced, may or may not be commonly an injurious factor in food made from flour. A. They may.

Q. How?

A. Because the nitrates may be converted, or will be converted to a certain extent, into nitric acid into the stomach, if they are not present as nitric acid to begin with, and nitric acid is a powerful poison.

Q. Now, with respect to the nitro compounds, which Dr. Folin testified to here this morning. Are they to be considered the same thing as we now have spoken of the nitrates resulting from the nitric acid, or are they something else?

A. The nitro compounds are among the most notorious poisons of organic chemistry.

Q. Well, now, what is a nitro compound?

A. A nitro compound?

Q. Yes.

A. It is any substance—an organic substance which is produced by the action of nitric acid upon that substance. It has that group, NO_2 , in its molecular make-up. That is to say, if you start with benzine, you replace by the action of the nitric acid upon benzine, one hydrogen in that substance, by the group NO_2 , and you produce, there, from benzine, or benzol, nitro-benzine, or nitro-benzole, which ever you wish to call it. You may have dinitro or trinitro. That is to say, you may replace more than one hydrogen atom, by the NO_2 group, and have a substance containing more nitro groups.

Q. That is produced by the action of nitric acid?

1220 A. Yes.

Q. Does it take any specific quantity to produce any reaction or is there always reaction, and it only takes a specific quantity to produce discoverable reaction?

A. There is always reaction.

Q. Now, what is the xanthroprotein, or proteic action?

A. Xanthroprotein is the name which has been given to the yellow substance which is formed by the action of nitric acid upon organic matter.

Q. Now, assume that this Alsop bleaching process, when used for the purpose of treatment of flour, increases the yellow color in the flour, what, in your opinion is the reaction evidenced by that yellow? A. I do not think I quite understand.

Q. Assume that, by the treatment of flour with the nitrogen peroxide gas mixed with air, increases the yellow color in the

flour,—that is, makes the flour yellow, what does that yellow color indicate? What action or reaction?

A. It indicates the formation of xanthoprotein in the flour.

Q. That is the nitro compound?

A. Nitro compound of gluten. Probably a larger part nitro compound. These nitro compounds form in the gluten of the flour.

Q. Now, is that one of the class of poisons, which you said were the most notorious known—organic poisons?

A. Yes, it belongs to that.

Q. Now, as to the degree with which the same will be produced—the rapidity,—upon what does that depend, when you are treating flour with nitric acid, or NO_2 , which forms in the nitric acid, in the presence of water?

A. That depends upon the quantity of NO_2 which is present, acting upon the flour, at any given time.

Q. Are the nitrites sometimes used for medicinal purposes?

A. They are.

Q. And you have described, I think, the characteristic effect of injection of them? A. I have.

1221 Q. Do you know of any cases of nitrite poisoning?

A. Yes, there are many of them.

Q. Some that have come under your own observation, some that are reported?

Q. I have seen one, but there are twelve or more which have been described in the literature, some of them were of fatal issue.

Q. Now, as to the origin of nitrites, when found in the saliva of human beings. What do you say of that?

A. I think that, normally, there are no nitrites present in the saliva. They are produced there, simply due to uncleanly conditions, which we cannot always avoid, in every-day life, which make it possible for certain bacteria, which we call the nitrifying bacteria to develop in the cavity of the mouth, and to produce nitrites as a result of the economy of their life.

Q. Now, if it is true, as has been suggested here a number of times, that people swallow nitrites in their saliva, in varying quantities—perhaps find it in smoked meats, and in some of the vegetable food products of the market—what is the effect of the eating of such nitrites?

A. The effect would be exactly the same as the eating of nitrites in any substance.

Q. Now, I will ask you, have you ever known of a case of a person being taken ill from nitrite poisoning, from eating bleached bread? A. No, sir, I have not.

Q. Or smoked meats, or anything of that sort?

A. Well, I have known people to be ill from eating smoked meat, and I have been called in for such cases, but whether they were under the head of ptomaine poisoning or nitrite poisoning, I am not prepared to say.

Q. You would not be prepared to identify the poison?

1222 A. No, sir.

Q. Now, if in your experience and observation, you had not come across a patent sick from nitrites in food, how can you say that the adding of these minute—sometimes described by our brethern on the other side as “unweighable” amounts of nitrites to bread—how can that be injurious?

A. It is injurious to the extent to which the nitrites are present. The injury resulting may not be noticeable to us, but we are constantly contending against injurious effects which are acting upon our organism, and the fact that we do not always feel well is due to these many little injurious causes which are acting all the time. Throughout any day of twenty-four hours, we do not always feel the same. We have moments of what we call well-being. These are the normal moments. Then, we have moments when we do not feel quite so well. That is due to the fact that there is some cause or other acting to detract from our well-being. We cannot put our finger on that cause and say what it is—perhaps we may, sometime[may] years hence. We do not know now, always, what the cause is, that makes us feel badly. Undoubtedly, however, there are a great many different causes, and most of them are bacterial in nature, which are acting constantly upon our well-being, to produce a diminished sense of well-being, and I think not unlikely the nitrites produced in the mouth and absorbed, may be one of those causes, but it is very difficult—practically impossible to say that, definitely.

Q. Well, now, if nitrites are found in the saliva, and sometimes traces in the air, and they are injurious to the human family, has not nature made a mistake, as suggested by our learned brother on the other side, in some questions, in permitting these things to be, and therefore, should we not put some more into the flour, in order to—

Mr. Scarritt: (Interrupting): I object to this as a mere argument, if your Honor please, getting too far away
1223 from the issues in this case.

Mr. Butler: I thought you considered your cross examination as germane.

Mr. Scarritt: Well, I am not asking you to criticise my cross examination.

Mr. Butler: I would not do that, Judge Scarritt.

The Court: Without reference to what has been said, I think the objection should be sustained.

By Mr. Butler:

Q. Now, with respect to the adulteration of foods by the addition of poisonous and injurious substances, you may tell us whether or not in your opinion foods may be adulterated by such additions, when the consumption of the same may not produce evidence of injury, or poisoning, manifesting itself by symptoms or apparent effect?

Mr. Elliott: Just one moment. May I have that question repeated?

(Question read by the reporter)

Mr. Elliott: I think that is objectionable, if your Honor please, as calling for a conclusion of law.

Mr. Scarritt: It is paradoxical.

The Court: You may answer.

Mr. Scarritt: Save an exception.

Mr. Butler: Go on.

A. I do, most decidedly.

Q. Is it necessary that the addition of poisonous or deleterious substances to food, be such that the consumption of the food will show itself by symptoms, in order to justify a conclusion that the same may be injurious to health?

Mr. Scarritt: We object to that, if your Honor, please.

The Court: You may answer.

The Witness: It is not necessary for me to make any such assumption.

1224 By Mr. Butler:

Q. Now, as to the health. How about the human family—are we all alike, in our powers of resistance, or is there great variability in that regard?

A. There is a great difference in the powers of resistance, among various individuals of the human family.

Q. Now, as to power to endure the eating of nitrites in bleached flour bread—would that be constant, or variable?

Mr. Scarritt: We object to that, if your Honor please, because the witness says he don't know anything about it. He has never observed any effect or result from it, whatever. He knows nothing of it except in the concentrated form.

The Court: He may answer.

Mr. Scarritt: Save an exception.

A. Yes, that would be variable.

By Mr. Butler:

Q. Illustrate that, and tell us how.

A. Whereas a grown man might feel, or might have as a result of the ingestion of bread made from bleached flour, only a very slight action, due to the nitrites, an action which he would not perceive, that action might become considerable in an infant, so as to produce, in that infant, a more or less serious disturbance of health.

Q. And would the danger to the infant increase as the quantity increased?

A. It would, decidedly, children being particularly sensitive to the action of nitrites.

Q. And would the amount of these poisons increase in the flour, as the bleaching increased, and the yellow develop?

A. Yes, sir.

Q. Some question was propounded, reference being made to the United States Pharmacopoeia, I think—

1225 Mr. Butler: You did that, didn't you, Judge Scarritt?

Mr. Scarritt: I cannot pronounce that. I did not say anything about that. I spoke about the United States Dispensatory.

Mr. Butler: Well, you meant the same thing.

The Court: That may be a subject that is quite interesting, but I do not hear a word of it.

Mr. Butler: I wanted Judge Scarritt to help me decide who used the term United States Pharmacopoeia in the examination.

Mr. Scarritt: I did not refer to that.

Mr. Butler: Well, by some other gentleman on the other side, as justifying the use of nitric acid.

Q. Now, what is the practice, nowadays, as to the administration of nitric acid, or nitro-hydrochloric acid, for medicine?

A. If I remember correctly, Judge Scarritt referred to the United States Dispensatory, which is a modification of the Pharmacopoeia.

Q. Very good. I could not pronounce "dispensatory".

A. I should say that a physician does not follow the dispensatory in his ideas of treatment. The dispensatory, on the other hand, is supposed to be a help for him to find certain things. Because a certain substance is stated in the dispensatory as being used, or having been used, is no reason why

it should be rational to use it, the use of nitric acid, today, by any intelligent physician, would be, to my mind, almost criminal.

Q. And what is the practice of physicians, generally, in that regard? What was it with respect to nitric acid, heretofore, and what is it now?

A. Nitric acid was used, at one time, with the idea of increase oxidative processes in the system; that is to say, when they thought oxidation was sluggish, as they termed it, they gave nitric acid to increase the oxidation, with the
1226 theoretical idea that the nitric acid would give up some of its oxygen, as it does, for instance, in case when it is brought in contact with metals, and that this added amount of oxygen would help to carry out the oxidative processes in the organism, but nothing of the sort occurs, when nitric acid is given. Nitric acid was also given in the form of nitrohydrochloric acid, and there it is not only the nitric acid that acts, but free chlorine, which is a very serious poison. The nitric acid, taken into the system, acts as it always does upon organic matter, and produces the same effect upon the mucus membrane of the stomach, that it does in the flour. It produces the xanthro protein action on the tissues. It produces organic nitro compounds, and that is the action which always takes place.

Q. In case of a drop of hydrochloric acid, resulting from this NO₂ mixed with water, comes upon human flesh in the laboratory, and so forth, what happens as to the color?

A. It produces a yellow stain. I have one, on my fingernail (showing fingernail to the jury).

Q. And the color of the contents of exhibits 47? A. Yes.

Q. In case of the pouring of this gas, made by the Alsop machine which you saw, upon the flesh, what is the effect?

A. It produces the same yellow color.

Q. That is, the xanthro?

A. Xanthro protein reaction.

Q. That is, this word "xanthro" means yellow; somebody told me? A. Yes.

Q. In the case of pouring the nitric acid upon flour, in a vessel you may tell us whether or not gas will be formed?

A. If nitric acid is poured upon flour in a container, nitroperoxide gas is formed by the action of the nitric acid upon the flour.

Q. Is its odor recognizable? A. Yes, sir.

Q. Form in quantities that will blow out corks and
1227 burst bottles, and things of that sort? A. Yes.

Q. Now, if there only be a little bit put on, will the same kind of action take place differing only in degree?

A. The same kind of action will take place, differing only in degree.

Mr. Butler: I think you may cross-examine.

The Court: Well, it is hardly time for recess, but I always dislike breaking into an examination of counsel. We will take recess for a few minutes.

(Recess taken as above ordered.)

Cross-Examination

By Mr. Elliott:

Q. Dr. Boos, I understood you to say that this Alsop gas, or this gaseous medium that comes from this Alsop machine that you inspected, was visible. Do you know what voltage was on the machine, and what amperage?

A. No, I cannot tell you that. I did not go into that.

Q. You did not go into that? A. No.

Q. Do you know, at the time you examined this gas, whether it was turned off from all the agitators, and simply passing through one?

A. Examined the gas where? You mean in the agitator?

Q. In this Rex Mill. Is that where you were examining that? A. Yes.

Q. Where you say you saw the gas?

A. I thought I saw the color in the very act—in the act of its burning, as you might say, where the flaming arc is discharged in this box.

Q. Now, you mean in looking through the glass?

A. Yes, in this box where the flaming arc was, I thought
1228 I saw the color there.

Q. Did you examine it at the agitator, where it goes into the flour? A. Yes.

Q. Did you see the color there?

A. I did not see it. You cannot see it because it goes through a system of iron pipes into the agitator.

Q. You did not remove the pipe to look at the gas, and see if you could see it?

A. I could see it when it was allowed to flow into a glass receptacle. That is, it was allowed to flow from the iron pipe into a glass receptacle. Then I could see it, in that receptacle. Whether I could see it issuing from the pipe or not, I do not know.

Q. Now, was that the same glass receptacle that Dr. Hulett had? A. Dr. Hewlitt and Dr. Acree, and Dr. Mitchell.

Q. That was the same experiment that he testified to, when he made a vacuum in the glass?

A. Yes, that was Dr. Hewlitt.

Q. And that is the glass you refer to?

A. That is the one Dr. Hewlitt had. You could see it flow in, because where the gas was simply allowed to stream through the graduated cylinder, it replaced all the air in there.

Q. For some time? A. Yes. That was Dr. Acree.

Q. Did you hear Dr. Acree testify about that? A. I did.

Q. And did you see it, in the same way he did, by comparing it with another glass tube, that did not have the gas in it?

A. Yes.

Q. And a white back ground? A. Yes.

Q. Now, Doctor, I want to ask your opinion—I want
1229 to get your opinion of what happens to flour when this gaseous medium from the Alsop machine comes in contact with it. What do you say occurs?

A. The gaseous medium, which contains nitrogen peroxide, is brought in contact with the flour. The flour contains a certain amount of moisture, and the nitrogen peroxide combines with this moisture, and forms one part each of nitric and nitrous acid. As a consequence of the presence of these two substances, nitric and nitrous acid, the flour is bleached. Whether that bleaching is done by the nitric acid, alone, or by the nitrous acid and the nitric acid, I do not know. I have been led to believe, from what I have seen, that nitric acid certainly is a factor in the bleaching.

Q. Now, then, so far, I believe you are in accord with some of the other gentlemen? A. Yes.

Q. You say this gas comes in there, and it splits up into nitrous acid and nitric acid? A. Yes.

Q. Now, we have got that far. Now, I want to ask you as to these compounds, of nitric acid and nitrous acid. Do you say that there are nitrites, as such, and nitrates, as such, in flour treated by this process?

A. I think that it is possible to assume—I think it may be assumed that nitrates may be present. That nitro compounds are formed, we can tell from the reaction of the gas upon the flour, producing the typical color of that nitro compounds.

Q. We will just limit it, for the minute, to nitrates, and nitrites. I want to get your opinion as to whether you think that nitrates, as such, and nitrites, as such, are in the flour treated by this Alsop medium?

A. I think they are.

Q. You think they are, as such?

1230 A. I think they are.

Q. That is, that these two gases unite with certain salts, or bases in the flour, and produce nitrites and nitrates?

A. I answered that question, assuming you included nitric acid and nitrous acid, when you said nitrites and nitrates. I know that nitrous acid and nitric acid are present; to which extent nitrates and nitrites are present, I do not know.

Q. No, I do not ask you about the extent, at all. I was just trying to get, definitely, what you think is here.

A. Yes, only you limited me afterward to the compounds of nitric acid, and nitrous acid.

Q. Well, nitrite is a compound of nitrous acid with some base or salt? A. Yes.

Q. And nitrate is a compound of nitric acid, with some base, or salt? A. Yes.

Q. That is what I mean. Do you say those combinations occur, and that nitrites, as such, and nitrates, as such, are in the flour?

A. I assume that they may be present.

Q. That is your assumption? A. Yes.

Q. Now, I want to ask you what has been the extent—I really don't know whether you answered this or not—what has been the extent of your experimentation with flour bleached by the Alsop process, if any?

A. My experimentation has been very limited, in extent. It has simply amounted to watching the bleaching process in the mill, and then collecting some of the flour, as it issued from the agitator, and that is all. Then, I collected some of the flour which the miller scraped out of the end of the tube, which had been overbleached, turned yellow.

Q. Over treated?

1231 A. Yes, over treated; and those two samples I took home with me, tested them, but I have not carried out any experiments.

Q. And that does not form the basis of the opinions you have been expressing?

A. No, it does not.

Q. Then, is it fair to say that you have made no experiment, or conducted no investigations with flour bleached by this Alsop process, for the purpose of your testimony in this case, other than what you have just said you saw some?

A. That is fair to say.

Q. Now, would that same answer apply to bread baked from flour that has been bleached by this Alsop process?

A. Yes.

Q. You conducted no personal investigations with bread?

A. I have tested various samples of bread since I have been in Kansas City, with the Griess reagent, to determine whether or not that bread was baked from bleached flour.

Q. Anything else? A. No.

Q. You have not gone into the digestibility, and things of that kind? A. No, I have not.

Q. Then, the extent of your experimentation of bread has been, that you have dropped the Griess reagent on it, to see if it responded for the nitrite test? A. Yes, sir.

Q. Now, I want to ask you, Doctor, a question similar to that I asked Doctor Folin, just to get it in your testimony. Do heat and mass action, including concentration, pressure, and the presence of other substances, all enter into the—most of them—all enter into consideration, when we are considering possible combinations or reactions?

A. They all play a part, yes.

1232 Q. They all play a part? Did you hear Dr. Folin's testimony? A. I did.

Q. Do you agree with him that, if you vary in one of these factors, you may vary the degree or extent, or whatever it may be, of the reaction? A. Yes.

Q. May modify the reaction? A. The extent of it, yes.

Q. Sometimes, it may even change the whole character of the reaction? A. I think that is conceivable.

Q. Well, the illustration I put to Dr. Folin, of adding dilute nitric acid to benzine, and then more concentrated, and then highly concentrated, illustrates that, would it not?

A. The formation of di-nitro benzine, and so forth, as depending upon the quantity of nitric acid, the temperature, and one thing and another, is true, but you said you got nothing at first, by adding nitric acid to benzoe. I do not agree with you. I think even dilute nitric acid will produce a certain amount of nitro-benzine.

Q. Now, my information is that, in the dilute form, no compound is formed, whatever, when you add it to benzine?

A. That is contrary to Beilstein—our Bible in chemistry.

Q. Then in the higher concentration, you get dinitro-benzine? A. Yes, sir.

Q. And then, still higher? A. Polynitro.

Q. That would illustrate, where you vary the concentration, you do get an absolutely different chemical reaction?

A. Yes.

Q. And a different material, as result of the reaction—different compound?

A. I don't know as you can call it a different chemical
1233 reaction. You get the same chemical processes going on, to a greater degree.

Q. Well, it results in different compounds?

A. It results in various compounds.

Q. Now, is flour a highly complex substance?

A. It is.

Q. And I will ask you, Doctor, with this in mind, we have brought out about the differences in concentration, and the other factors we have referred to as possibly modifying chemical reactions—if a chemist is able to predict what will be the result of bringing any chemical reagent into culmination with an organic compound, with certainty?

A. He is able to predict, to a certain extent, what will happen when nitric acid is brought in contact with a given chemical compound.

Q. I did not say nitric acid. I say, is a chemist able to predict with certainty what will result with the bringing in contact with an organic compound, some chemical reagent?

A. He is able to do that, within certain limits.

Q. Doesn't it often happen that, theoretically, you can figure out that, by bringing certain things together, you will get a certain compound, or a certain result, and yet, when you try it, you do not get that? Doesn't that often happen in your laboratory experience and with every chemist?

A. That happens when you are working on reactions which are theoretically possible, but which have not been demonstrated, as yet, as taking place.

Q. Yes, that is just what I am dealing with. I did not mean it, in concrete instances. What I mean is, you cannot, a priori, predict what is going to happen, by bringing certain reagents in contact with certain organic compounds?

A. You cannot, in every case, predict it, no.

Q. And, isn't it a truism in chemistry, that there is no such thing as reasoning by analogy?

1234 A. Oh, I beg your pardon. I think that is where we have made our greatest progress in chemistry, from reasoning by analogy.

Q. Well, I happen to have read a whole lot in another case, where that was stated. You do not agree with that, at any rate? A. No, I do not.

Q. Now, you have described certain effects of nitrites—the flushing of the face, and a whole lot of things, that I don't remember, but whatever they are—what amount of nitrites did you have in mind, if any, as producing those symptoms?

Q. You will get flushing of the face and neck, and fallen blood pressure, and dizziness, in small medicinal doses.

Q. Well—

A. A grain of sodium nitrite, if you wish to, or, say two or three drops of amyl nitrite, another form in which it is given.

Q. Two or three drops of amyl nitrite, or a grain of sodium nitrite? A. Yes.

Q. I don't want to make it any stronger than you said—you make it?

A. I think it would, in most cases, but there is a difference in individuals; a great difference in individuals.

Q. Have you experimented with nitrites, to observe the effect on the system? A. Yes.

Q. What is the smallest amount with which you have experimented? A. I don't remember.

Q. Could you help us, by giving us an approximation? Would it be a half grain, or a quarter of a grain?

A. Since my work at the time was not with the purpose to find out how small a dose would give a reaction, I did not pay any attention to that.

Q. Certainly not.

A. My work was simply to determine, in the Pharmacology Institute in Strasburg—to demonstrate to a class of students the reaction of nitrites when given to animals, and I do not remember the doses.

Q. You would not remember the smallest amount with which you experimented, where you got any observable symptoms?

A. I would not remember that. If I gave you any amounts, it would be mere guesswork, and of no value.

Q. You could not say whether it was less than a half a grain, or a quarter of a grain, or within any range like that? I would not want to tie you down to any figure, if you cannot remember.

A. I cannot say, because those experiments were with an entirely different purpose in view.

Q. Well, I will ask you this: Isn't it true that, so far as you have testified as to the possible effect of these—shall we say “unweighable” amounts of nitrites, or minute amounts of nitrites, or traces of nitrites, however you may denominate it—your testimony as to the possible effect of those was based on your knowledge of the effect produced by considerable doses—enough to produce observable effects?

A. By larger amounts.

Q. And you deduced from that, that these minute amounts will produce the same effect, differing in degree?

A. Differing in degree, yes.

Q. That is fair to say, that that is a deduction from your knowledge of the action of the larger amount? A. Yes, sir.

Q. Also,—I do not want to misquote you,—but I will ask you—did you say that methemoglobin might be produced, but be so slight as not to be observable? A. I did.

Q. Then, you would have to simply rely upon your general knowledge that it was there? A. Yes, sir.

1236 Q. You would not be able to say it was there, from actual observation? A. No.

Q. Now, it is well known to gentlemen of your profession that, generally speaking, nitrites will produce methemoglobin in the blood? A. Yes.

Q. That is a well recognized fact? A. Yes.

Q. And, as I understand it, you have added certain concentration—a certain amount of nitrites to the blood, and that illustrates that fact? A. Yes.

Q. That, I believe was blood of an ox? A. Yes.

Q. And the dilution in that particular instance was one to two thousand—one of sodium nitrite to two thousand of blood?

A. It was perhaps a little bit less, because I added a little bit more—because I added the reagent, yes see. I had calculated on a hundred cubic centimeters of blood, but I added 25 cubic centimeters of reagent, so it would be a little less than 100—that is, a little more than one to two thousand. But that is of no consequence.

Q. I understand, you were not testing the minuteness of it? A. No.

Q. Now, I want to ask you if you are acquainted with this work I have here, entitled "Pharmacology and Therapeutics, of the Action of Drugs", by Cushny? A. I am.

Q. Is that a standard work?

A. I think it is the best we have, in English.

Q. Now, I want to read from Page 468, and ask you if you agree with what is stated here. (Reading):

1237 "Amyl nitrite causes the blood to assume a dark, chocolate color, both in the body, and in the test tube. The color is due not to any compound formed by the nitrites, but to their changing the hemoglobin to methemoglobin, and nitric oxide hemoglobin compounds, in which the oxygen is attached much more firmly than is oxyhemoglobin, and which differs from it, in the absorption bands seen in the spectrum. This change in the hemoglobin does not entail the destruction of the red corpuscles, and the compounds are eventually reduced by the tissues, although the reduction progresses much more slowly than that of ordinary oxyhemoglobin. In man, usually very little of the hemoglobin is thus transformed, and, even after large quantities have been inhaled, no abnormal coloration of the blood is noticeable, but it has been demonstrated, recently, that the alteration of the hemoglobin is a cause of death in some animals, through the blood becoming incapable of carrying the oxygen to the tissues."

I direct your attention particularly to the part I have read which states,

"This change in the hemoglobin does not entail the destruction of the red corpuscles, and the compounds are eventually reduced by the tissues, although the reduction progresses much more slowly than that of ordinary oxyhemoglobin. In man, usually very little of the hemoglobin is thus transformed."

And then, later on:

"It has been demonstrated, recently, that the alteration of the hemoglobin is a cause of death in some animals."

Mr. Butler: What page is that?

Mr. Elliott: 468.

By Mr. Elliott:

Q. (Offering the book to the witness) I will hand you
1238 this, because I am afraid I—

A. (Interrupting) You read it very well, yourself.

Q. I will ask you if you agree with what is there stated?

A. I think I can agree fully with what he says. He says it has been found that death in some animals is caused by this. I think it is the cause of death in each instance—that is, in man, as well as in animals.

Q. Then, you would be inclined to disagree with him?

A. Well, he says some animals. That might include man, for all I know, what he means. It is the cause also of the death in man. I would simply add that, perhaps, to his statement.

Q. Well, do you agree with this statement (reading): "In man, usually very little of the hemoglobin is thus transformed, and, even after large quantities have been inhaled, no abnormal coloration of the blood is noticeable."

A. Yes. Notice, Mr. Elliott, he says no abnormal coloration of the blood is noticeable.

Q. Yes.

A. He does not say that the change of the blood is not noticeable by the spectroscope.

Q. No. I am just reading exactly what he said.

A. He means what is called "microscopically noticeable". That is, by drawing the blood, it would not look very much different from the ordinary, or by looking at the person, perhaps.

Q. But it is true that, "In man, usually very little of the hemoglobin is thus transformed, and, even after large quantities have been inhaled, no abnormal coloration of the blood is noticeable." He does not say whether by the spectroscope, or anything else. A. I did not get that.

Q. I will show you that (handing the witness a book).

A. No, I do not agree, at all, with that. I misunderstood
1239 your reading. No, I misunderstood you. I think he is quite wrong, in the light of more recent works on that. I think, in man, the formation of methemoglobin is as pronounced as it is in any animal. Now, Mr. Elliott, I understood you to mean—I understood it, when you read it, that, in man, very little of the methemoglobin is transformed back into hemoglobin. You see? I did not understand.

Q. I was not trying to put anything of my own into that. I simply wanted to read what this gentleman said, and ask you if you agreed with him.

A. No, I do not agree with him, there.

Q. Now, while we are on this subject, do you remember giving a deposition? A. I do.

Q. And you were asked, I believe:

"Do you know of any case of chronic poisoning from an inorganic nitrite,—sodium nitrite, for instance", and you answered: No, I do not, personally." Is that correct?

A. That is correct.

Q. And you were again asked: "Do you know of any, in the literature?" and you answered: "No, I know of acute cases, but not chronic cases." Is that correct?

A. That is true.

Q. And then you were again asked: "But, so far as you know, also, such a thing as chronic nitrite poisoning—that is, of an inorganic nitrite,—has never been heard of, and no case has ever been recorded. That is true, isn't it?" and you answered, "As far as I can recollect, I don't know of any case". Is that correct?

Mr. Butler: I think that line of cross-examination is not admissible, or proper, unless his testimony, here, be different from that claimed to have been given elsewhere, and I 1240 don't understand that Mr. Elliott even claims that he testified differently.

Mr. Elliott: Why, absolutely not. I just did it to put it briefly.

Mr. Butler: Well, why don't you just ask the questions? It don't make any difference what he testified elsewhere. Just ask for the facts.

The Court: Well, go on, within reasonable limits.

Mr. Elliott: That is all, on that.

Q. Now, I understood you to say, also Doctor, that nitrates are deleterious in their action on the human organism? Is that correct? A. They are.

Q. And yet, I believe it is true, is it not, that nitrates occur very generally in plants, and vegetables that we eat—perhaps other things? A. Yes.

Q. And whatever may be said about nitrites, it inevitably occurs that we must eat nitrates, doesn't it? A. Yes.

Q. That is certain? A. I think so.

Q. Now, as to the possible harm from these small amounts of nitrites—I don't want to go into this in detail, but I will just ask you to assume that they occur in the air, and in the water, and in certain vegetables, and in smoked meat, and cured meat, and in the saliva. Just assume that, irrespective

of whether it is true, or not. I will ask you, would your opinion that you have expressed, that they must inevitably be harmful in certain degree, be modified in any way, by considerations of the body becoming tolerant, or immune to these minute amounts?

A. No. That does not alter my opinion.

1241 Q. And do you deny that the body is prepared to handle these varying amounts of nitrites, such as are contained in the saliva? A. I do.

Q. Do you deny that those nitrates may oxidize—

Mr. Butler: Nitrates?

By Mr. Elliott:

Q. Nitrites may oxidize to nitrates, and pass out of the body readily?

A. That I am inclined to doubt, very strongly. I think the tendency is the other way.

Q. I wish to call your attention to this sentence, from page 469 of the same book I referred to in a previous question, under the heading, "Nitrites of potassium and sodium", and ask you if you agree with this statement. (Reading) "The nitrite absorbed is excreted as nitrate in the urine, although some of it may remain unoxidized". Do you agree with that?

A. I agree with that. But that is after the nitrite has done its harm.

The Court: How is that?

A. That is after the nitrite has worked its harm in the system, that it is finally excreted as nitrate.

By Mr. Elliott:

Q. That is your idea about that?

A. There is no doubt of that.

Q. Well, at any rate, you agree with that statement?

A. That is the mode in which they are finally excreted from the body.

Q. Are you acquainted with this book, "A text-book of physiological chemistry", by Hammerstein? A. I am.

Q. Is that a standard work?

A. It depends upon the edition.

Q. Well, it is Mandel? A. What is the date?

1242 Q. It is an authorized translation by John A. Mandel, 5th edition, 1909. A. Yes.

Q. Page 204.—No, let me read back just a little further, 203, this is.

Mr. Butler: Give the name of that book will you, Mr. Elliott?

Mr. Elliott: "A text-book of physiological chemistry", by Hammerstein, page 203.

The Witness: Pardon me—the English translation of the book.

Mr. Elliott: Yes, by Mandel.

Q. At the bottom of page 203: (Reading) "Met-hemoglobin does not contain any oxygen in molecular or dissociable combinations, but still the oxygen seems to be of importance in the formation of met-hemoglobin, because it is formed from oxyhemoglobin, and not from hemoglobin, in the presence of oxygen, or oxidizing agents. If arterial blood be sealed up in a tube, it gradually consumes its oxygen, and becomes venous, and by this absorption of oxygen, a little met-hemoglobin is formed." That is, as I understand it, after the addition of anything. "The same occurs on the addition of a small quantity of acid to the blood." Do you agree with that?

A. Some acids will do it; yes.

Q. He did not specify. This says "small quantity of acid". I assume he means any acid. "By the spontaneous decomposition of blood, some met-hemoglobin is formed, and by the action of ozone, potassium permanganate, potassium ferricyanide, chlorates, nitrites, nitro-benzin, pyrogallol, pyrocatechin, acetanilid, and certain other bodies on the blood, an abundant formation of met-hemoglobin takes place", and I direct your particular attention to the ozone, and ask if you agree with that? A. Yes.

1243 Q. That that produces or may produce met-hemoglobin in the blood? A. Yes.

Q. Now, knowing all about these nitro compounds, whether or not they would be formed would depend, Doctor, would it not, upon the concentration of the reagent used?

A. I think, Mr. Elliott, that we would have a formation of nitro compounds from the proteid in the flour, with the smallest possible amount of nitric acid present. That is to say, with only a molecule acting upon the flour, we would have a molecule, or an equivalent amount of these nitro compounds formed.

Q. All right, now,—I am not going to quarrel with you for a minute. I just want to get your answer. If I understand it, it is that with any specific dilution of nitric acid, there would be nitro compounds formed in flour? A. Yes.

Q. All right. That is perfectly clear. Have you made any study of nitro compounds—special study? A. Yes.

Q. Have you formed them, yourself?

A. Yes. I published a reprint—I published an article on research on the nitro compounds and derivatives of these that are formed by the action of nitric acid, on what we call anisol, which is the substance contained in the oil of anise. This

anisole is a meth-oxy-benzene, and when treated with nitric acid, it is converted into trinitro-meth-oxy-benzol, which is the methyl ether, or methyl iodide—methyl, with ether or picric acid.

Q. Now, what dilutions of nitric acid, Doctor, have you worked with? A. In that case?

Q. Yes.

A. I can't tell you. I can get the reprint for you.

Q. Did you use dilute nitric acid?

A. No. I used concentrated, because I wanted a large amount of product.

1244 Q. Would you be able to tell us the smallest dilution with which you have worked, in producing any nitro compound?

A. I would not be able to tell you, for the simple reason that I was not trying to get the smallest amount. I was trying to get the largest amount.

Q. Now, how far, then, does your statement that the most dilute form of nitric acid will produce a nitro compound—how far is that based on theoretical considerations?

A. Why, that is based on statements which are to be found in the literature—statements of Beilstein,—in our Bible, as I said before—our chemical Bible, or book we go by. Beilstein.

Q. What is the name of the book?

A. Beilstein's Handbook of Organic Chemistry. It is a book in which all the chemical substances known are listed, and the methods of their formation is there given, and their purposes are stated.

Q. You are not able to tell us, however, the dilutions you have used in any nitro compound you have formed?

A. No.

Q. Now, I think you say you had seen one case of nitrite poisoning? A. Yes.

Q. Was that the case you told me about, once before?

A. Yes.

Q. Of amly nitrite? A. Yes.

Q. And that is an organic nitrite, is it not? A. Yes.

Q. And one that we just read about, that you inhale?

A. Yes.

Q. Now, you said there were twelve or more in the literature—can you tell us something about those—what they were?

A. These cases that I have reference to were collected and published by Carl Beck, of Chicago, an eminent clinician, and they were, for the greater part, cases of nitrite poisoning

1245 which resulted from the medicinal administration of bismuth subnitrate. They were fatal in a number of cases, in children, and in every case methemoglobinemia was very pronounced. Methemoglobinemia was very pronounced.

Methemoglobinemia means the condition of the blood where the oxyhemoglobin is not there as such, but you have methemoglobin instead. I said before that children were particularly susceptible to nitrite poisoning, and that is especially true when they are given nitrates, because in the intestine of children, there seem to be a large variety—a larger number of bacteria, which convert the nitrate into the nitrite, than there are in the intestine of grown-up persons.

Q. Now, these cases, as you have stated, were the cases of the administration of subnitrate of bismuth?

A. Yes.

Q. Bismuth subnitrate? A. Yes.

Q. And, for that purpose, I presume it was in connection with the use of the x-ray apparatus?

A. No. It was in order to stop diarrhea, and the subnitrate of bismuth had been given in doses of four or five grains.

Q. That was the subnitrate of bismuth?

A. Subnitrate of bismuth; yes.

Q. Now as to the nitrites in the saliva. You have expressed the view, I believe, that they are not normal? A. I do.

Q. Let us see if we understand each other. Do you mean by that that it doesn't follow that they inevitably occur in the average human being's mouth?

A. It all depends upon what you mean by the word "normal".

Q. Well, I will explain. Now, as we live, ordinarily, and have lived, isn't it true that there are bacteria in the mouth?

A. Yes.

Q. And these bacteria produce nitrites in the mouth? A. Yes.

Q. Whether or not the nitrites are in the gland, or nitrates are in the gland, or not?

A. Yes.

Q. It must follow, then, that whether the nitrites or nitrates are in the glands, they are in the saliva, as it is swallowed? A. Yes.

Q. And must be there? A. Yes.

Q. Now, that is what I mean by being there normally. That is, we must inevitably swallow them?

A. Well, may I answer—

Q. Yes, but just let me ask you one question. Now, you have stated that you rinsed your mouth out with some antiseptic, or something of that kind, and you didn't get the nitrites?

A. I said I did it, myself, as you remember. I rinsed out my mouth with dilute alcohol, and with normal salt solution, as we call it, repeatedly, until finally a specimen of saliva which I obtained did not give the nitrite reaction.

Q. But before you did all that, you got the nitrite reaction?

A. Yes. It wasn't very strong, because I usually try to keep my mouth very clean.

Q. I haven't the slightest doubt of it.

A. But I did get a nitrite reaction. But, if you will allow me, I would like to say something about the word "normal", as you asked me.

Q. Well, I don't want it. I think we understand each other.

Mr. Butler: Let him explain.

By Mr. Elliott:

Q. Well, go ahead.

A. It is very difficult to say what is "normal", and what is casual, or usual. Now, in the saliva of almost every person, you will find the organisms that produce pneumonia—the pneumonia cocci,—but I wouldn't call their presence, there, "normal", because it is due to their presence in the
1247 saliva that we have pneumonia. They seize upon the organism when its resistance is reduced, and we get our infection with pneumonia.

Q. In lots of them they don't do that?

A. That is very hard to say. You may have had a slight attack of pneumonia, when you didn't know it. Then, there is another point I would like to make, and that is this: The vast majority of all people who come to autopsy—that is, to post-mortem examination, show, whether through sickness, or accident—show signs of tuberculosis, at some time or other in life. You wouldn't call the tuberculosis a normal thing in a human being, would you?

Q. I am sure I don't know. I will let you call it anything you want to.

A. But it is very usual.

Q. You understand what I mean by "normal"?

A. Yes; it occurs frequently; that it occurs in the ordinary human being.

Q. It inevitably occurs in the ordinary human being?

A. Yes.

Q. That is what I mean by "normal".

A. That's not "normal". I think normal would be the human being in his best possible condition of health. You are not living in the best possible conditions of health.

Q. All right, but take the human being as we have it.

A. Yes. That is usual, but not normal.

Q. All right; that is what I mean. Now, there are a great many—outside of this question of nitrites, or any poisonous compound,—there are a great many foods that are not suitable for all kinds of people, are there not? A. Oh, yes.

Q. You couldn't feed a baby on the same thing you could feed a grown man? That is true, is it not?

A. It would depend on the age of the baby.

Q. An infant.

A. What is the definition of an infant?

1248 Q. A nursing baby. A. Under two years?

Q. Well, say two months. A. No, you could not.

Q. And you couldn't feed an invalid, or sick person, or persons with typhoid fever, or any kindred disease,—you couldn't feed them the same as a normal person? A. No.

Q. Still, that fact would not say that the food was wrong, would it?

A. It wouldn't mean that the food, as such, contained deleterious substances.

Q. No, I say, apart from all of that,—just taking the food.

A. No, it wouldn't mean that the food was wrong.

Q. Just the fact that all persons can't eat the same food, doesn't mean that the food is not perfectly good?

A. No, it does not.

Mr. Elliott: I believe that is all.

Redirect Examination

By Mr. Butler:

Q. As I understand it, when you were out here at the mill, you saw the specimens of gas taken by Dr. Hulett in the flask, which he reported in his testimony as 300 parts to the million? A. I did; yes.

Q. And you also saw the specimen taken by Doctor Acree in his flask, which he reported as 1,000 parts to the million—1,100, I believe. 1100 parts?

A. I did.

Q. Now, there was difference of degree of color?

A. There was difference; yes.

Q. Now, was it necessary to put that taken by Acree against a white background, and compare it with something?

1249 A. No. It was very distinct, any place. While it was being collected, as well as after, there was a pronounced yellowish brown color.

Q. And was this generator where the flaming arc takes place, in such shape that you could look into it?

A. Yes.

Q. Was there a glass, or something?

A. Yes. There was a little glass in front—sort of a box in which this discharge takes place.

Q. And I understood you to say to Mr. Elliott that you believed you could see that?

A. I certainly did believe I could see the gas being formed in it.

Q. Right where it was made? A. Yes.

Q. Now, as I caught the substance of your answer to Mr. Elliott, when he asked you, I believe, what happened when this gas came in contact with the flour, and you stated it was the formation of nitric acid and the nitrous acid, and that you know nitro compounds are formed, and that you believed nitrites and nitrates were also present? A. Yes.

Q. Now, as to the distinction about that. What is the nitro compound? Is that organic?

A. That is organic; yes.

Q. That is a combination of the acid with the protein, for example?

A. It is a compound resulting from the action of nitric acid upon the protein molecule.

Q. And that might be called a nitrate, if it is nitric acid, of a protein, or—

A. No, it could not be called a nitrate, possibly, of the protein.

Q. It would be called a nitro compound?

1250 A. It differs entirely from the nitrite.

Q. And, in the case of the addition of nitrous acid, the action of nitrous acid upon the protein—what would that be called—a nitro compound, too?

A. You would probably get a nitroso compound, in that case.

Q. Now, assuming there is some sodium salt—dilute quantities sodium, or potassium, or magnesium,—in the flour,—combined with those bases it would be nitrates, and nitrites?

A. Yes.

Q. Depending upon which acid was used?

A. Inorganic salts; yes.

Q. The nitrous acid, itself, may be regarded as a combination of the NO_2 and hydrogen? A. Yes.

Q. And a nitrite of hydrogen? A. Yes.

Q. NO_2 , and the nitrite reacting material is in material that will respond to this Griess test, as I understand it?

A. Yes.

Q. Whether it be the gas, itself, or the gas in solution, or nitrous acid? A. Yes.

Q. The nitric acid does not respond to that test.

A. No. It does not.

Q. So that that test would not indicate the amount or volume or character of the nitro compounds, which you characterized as the most notorious organic poisons?

A. It would give absolutely no indication of their presence. I didn't call them the most notorious, but among the most notorious.

Mr. Helm: What do you mean by the word "notorious"?

The Witness: Well-known, Mr. Helm.

By Mr. Butler:

Q. And question was raised, again, whether or not dilute nitric acid, acting upon benzin, would produce any
1251 reaction, and my understanding was you said it produced a nitro-benzin, to some extent, at least?

A. That is my understanding.

Q. And you referred to authority on that question?

A. Yes.

Q. Now, is that fact well understood by chemists?

A. I think it is.

Q. I intended to ask you, in my direct questions, as to the stability of this color, after the moisture and vapors of the bread has been condensed and the Griess test applied. Were you here when that test was made in the Court? A. I was.

Q. And are you able to glance at that tube, now, and tell us whether or not the color is as strong, now, as it was when the reaction was applied? A. No. It has faded a great deal.

Q. What is the explanation of that?

A. The azo-dye that is formed is a very unstable substance. That means a substance that easily goes to pieces. That is, it is easily broken up, and it keeps only a very short time. Very soon after this formation, it begins to disintegrate, and go to pieces, and that is what happened in this case.

Q. And would that be so, where the test was applied to organic material, like biscuits, etc., containing nitrites?

A. Yes, sir.

Q. The action of light and air, etc., works further changes, which destroys the value of the test? A. Yes.

Q. Mr. Elliott asked you whether or not you did not agree with him, that in chemistry, reasoning by analogy must be barred. I understood you to say that you did not so agree?

A. No. I do not.

Q. Why not? What is the rule among chemists, in that regard?

1252 A. I think that is how most of our information is obtained. I will give an example. There are those chemical compounds that we know may be formed, yet we have never undertaken to form them. We simply know that they must be formed, because of analogy, and that is, we don't waste our time preparing those substances, unless they have a particular value in themselves; but we know perfectly well that any one of these, possibly, will be there, from the fact that certain substances, chemically well defined, are formed under certain circumstances. Therefore, we know that any number of that group—almost, can be formed under similar conditions, and that is reasoning by analogy; and it is because we know cer-

tain fundamental reactions, that we try others, when we want to get other new compounds, and I think reasoning by analogy is one of the most important things in chemistry. I think most of our laws in chemistry are based on analogy, to certain extent.

Q. Now, something was said about the dose of nitrites. I understood you to refer to one grain of sodium nitrite as a small medicinal dose?

A. Yes. Sodium nitrite is a medicinal dose. I think it is about the right one. It is not a small one. It is the medium dose.

Q. Now, you referred to two or three drops only of the amyl nitrites being a dose? A. Yes.

Q. Now, the sodium nitrite is inorganic?

A. Inorganic; yes.

Q. And the amyl is organic? A. Organic nitrites; yes.

Q. Were you here when Doctor Kempster testified?

A. I was not. I was in St. Louis.

Q. Is amyl nitrite given by inhalation? A. It is.

Q. Now, you also spoke of the difference in persons, as to the effect of a given quantity of this. Does that differ even in adults, or are adults able to endure a dose of these 1253 nitrites more than others?

A. Oh, yes.—I don't know as I got your question.

Q. You have made reference, in your conversation during the cross-examination of Mr. Elliott, to a difference in persons, as respects dose? A. Yes.

Q. And effect from dose?

A. Yes. Some people are much more sensitive to the action of nitrites, than others. I may give as an example, these facts. If you give a person pearl of amyl nitrite—I showed you some.

Q. Have you it?

A. I don't know what I did with it. This amyl nitrite comes in little glass pearls, and when the person wishing to use the drug has need for it, he crushes one of these pearls in his handkerchief, and inhales the fumes. I used to demonstrate the action of the nitrite, to a certain extent, on myself, because I am very sensitive to that action. It produces on me flushing of the face, and in some people,—in others, it isn't nearly so apparent,—this flushing of the face, and light people are more apt to be good subjects to show the flushing of the face, than people with dark complexions, because the skin is usually light; but, outside of that, there is a difference in degree, also, and the flushing in different people, and some people are made dizzy by as little as three drops, amyl nitrite, while others are not affected to that extent. That is, although they feel the beating of the blood in the temporal arteries, their thoughts are not in any way disturbed. That is, they don't feel this sense of dizziness

or giddiness, that others do. So, there is a decided difference to be seen, there, in different medicinal doses, in different individuals.

Q. Now, in speaking of the immunity to small amounts of these nitrite reacting material, Mr. Elliott used the expressions "very minute", "unweighable", and "a trace". Now, you saw this test for nitrite reacting material, in this fluid condensed from the bread, at the time the test was made here in the court room, did you? A. Yes.

Q. Now, tell us whether or not that could properly be described as a mere trace of nitrite, or whether or not it was measurable quantity, by means provided by chemists, or known to chemists, rather, for the measuring of it?

A. It was a measurable quantity of nitrite.

Q. And, that the record may show some expression of the degree of that color, because it is unstable—about what color was it, as compared with some article more or less familiar?

A. It looked something like pink lemonade.

Q. A distinct pink? A. Yes.

Q. Not as dark as the ordinary—I don't know whether it is sold as much now as it used to be—tincture of arnica, that they sell in the drug stores for bathing bruises, and such things as that?

A. I don't remember that tincture. I have never used it.

Q. As dark as a light-colored beer? It has a slightly different color from the beer, I would take it.

A. I don't see how you could compare it to beer.

Q. My observation of color is very inaccurate. I am, like Mr. Elliott, somewhat color-blind, though not totally so.

Q. Now, as to the effect of minute quantities, such as would be in bread like this, made from bleached flour like this. You told Mr. Elliott, as I understood you, that the effect would be produced in the hemoglobin of the blood, so minute as not to be observable? A. Yes.

Q. Now, what was intended to be conveyed by that—observable how?

A. By looking at the person—by looking at the patient's blood, even by examination of the patient's blood with the spectroscope, which is very much more sensitive than the naked eye for the detection of met-hemoglobin, but which, after all, is not sensitive enough to detect very small quantities of met-hemoglobin.

Q. Now, your attention was called to certain statements on page 468 and 469 of Cushny's pharmacology and therapeutics, or the action of drugs. You did not ask for the date of this edition, and I don't know whether that would make any difference but I believe it is shown somewhere on the title page that

this is the fourth edition, "thoroughly revised and illustrated with 52 engravings." What is the last date of this?

Mr. Butler: Did you observe, Mr. Elliott?

Mr. Elliott: No, I did not.

By Mr. Butler:

Q. I believe this is copy-righted 1906. Do you know whether this is the latest edition, or not?

A. I don't know. There has been a recent edition of Cushny. I don't know how recent.

Q. Can you tell by looking at this?

A. I don't know. I have the 1906 edition.

Q. That bears a copyright mark of 1906, but the preface is dated 1899.

A. I think that is probably the first edition.

Q. No, it says here, "fourth edition".

A. Oh, 4th edition, thoroughly revised. I don't know the date of it.

Q. Well, I don't know that it makes any difference.

A. It don't seem to give any date.

Q. You expressed the opinion, notwithstanding anything that was said here, if there was anything to the contrary, that the change of the hemoglobin to met-hemoglobin may kill human beings—may kill man, I think you said? A. Yes.

1256 Q. Then, you spoke of chronic and acute nitrite poisoning. What is the difference between chronic and acute?

A. Chronic poisoning would be one that would be due to a long-continued administration of small doses, the individual effect of each dose being small, but these effects following so frequently that finally the organism shows poisoning, in consequence of the frequent administration of the drug in small doses. That is to say the organism has not had quite time enough to recover from one small dose, before the next one is superimposed upon it, and in that way, little by little, the resistance is overcome, and you get evidence of poisoning. That is what we call chronic poisoning.

Q. What effect does it have as compared with asphyxiation?

A. It is practically the same process. Asphyxiation is due to the fact that the blood cannot take up oxygen.

Q. Now, how is it that a large dose of these nitrites will produce the same effect or appearances as will partial asphyxiation—not to death, but injurious asphyxiation, by inhaling gas, for instance, if the gas would be permitted to run in a room where a person is. How does it happen it produces the same effect?

A. Well, the inhalation of illuminating gas, do you mean?

Q. Yes.

A. Illuminating gas contains a chemical substance known as carbon monoxide, and carbon monoxide forms a compound with the blood which is called carbon-monoxide-hemoglobin, and this carbon-monoxide-hemoglobin, like met-hemoglobin, doesn't take up oxygen, and, therefore, of course, it isn't passed on to the tissues, and you would get very similar effects from illuminating gas poisoning, that you would from met-hemoglobin formation in the blood. There is a difference, however. Carbon monoxide hemoglobin is a distinct compound of hemoglobin with carbon monoxide, whereas met-hemoglobin is a substance which can be formed, as you heard Mr. Elliott reading to you,—which can be formed by the action of a variety of substances upon the blood, including nitrites, nitro-1257 benzoë, potassium ferricyanide, ozone, chlorates, etc., whereas carbon-monoxide-hemoglobin is formed by only one substance—by carbon monoxide.

Q. Now, what is the character of these other substances, in which company we find these nitrites, that produce met-hemoglobin? I want to find out, here, what kind of company it is keeping in the books.

A. It is very difficult. We know practically nothing about the character of the met-hemoglobin formation, because that list includes substances which we call oxidizing agents, like ozone, potassium chlorate, and substances which we call reducing agents, like potassium ferricyanide—that is, substances which, in their chemical behavior, would tend to be rather opposite. On that account, we have practically no explanation, today, how this reaction takes place. We simply know the fact that it does occur.

Q. It mentions ozone, potassium permanganate, potassium ferricyanide, chlorates, nitrites, nitro-benzin, pyro-gallol, and here's one I [can] pronounce. A. Catechin?

Q. Pyrocatechin, acetanilid, and certain other bodies on the blood, an abundant formation of met-hemoglobin takes place.

A. Yes.

Q. Now, this man Hammerstein, translated by Mandel, indicates, as I take it from this statement that Mr. Elliott read, that abundant formation of met-hemoglobin takes place?

A. Yes.

Q. Is that the understanding? A. Yes.

Q. As applicable to man, as well as the lower animals?

A. Yes. I would like to say, in explanation, the most frequent cases of nitrite poisoning have occurred within the last few years,—that is, recognized,—practically, and I think 1258 that is why Cushny has that remark. I think he wrote that manuscript before he had had access to these more recent cases which show very clearly that met-hemoglobinemia is very pronounced in human beings. The cases of Carl Beck

show that,—the cases which were published here, in Chicago, this year.

Q. On what do you base your opinion, stated to Mr. Elliott that such nitrites as may be found in the air, and so on, without speaking about the lower animals, the human system does not become immune or tolerant of the results to be expected, or ordinarily produced?

A. When you come to the subject of immunity, you have struck the very most difficult one of modern biological science, almost, and it is very difficult to say what you mean by immune. I suppose "immune", the way Mr. Elliott used it, meant that that same substance, nitrites, or nitrous acid, would not exhibit, after while the symptoms for which it is known, by which it is characterized; but I will say this, that, because a substance does not exhibit those characteristic symptoms after a while, it is not to be said that that substance is not producing great harm. May I give an example?

Q. Yes, certainly.

A. This is an example I gave in Boston. It is well known, —the best known method—the best known example of producing immunity, artificially, is one with which you are all of you more or less familiar. It is the producing of immunity in the horse to diptheria, with the end in view to produce a serum which may be used on human beings, as an anti body to the disease, and the toxins produced by the bacteria in our system. The way this immunity is produced in the horse is by means of an injection into his blood, or subcutaneously,—it is done both ways,—of a culture of diptheria organisms—that is, the little bacilli that produce diptheria. By means 1259 of this injection, we produce in that horse a mild form of diptheria, but after a while, he recovers, because, to begin with, the disease is not as effective in the horse as it is in man. He is then given another dose. He has another attack of diptheria, milder than the first. That is, he may not eat his feed for a day or two, and he may have temperature, and he is given further doses until finally he shows absolutely no reactions to the organisms of diptheria. We then call that horse "immune", to the bacillus of diptheria, and he is immune as far as the disease which we call diptheria is concerned; and then his blood is drawn, and his blood is used to make what we call anti-toxin, to be used on human beings in the treatment of diptheria. That horse is immune to diptheria, but it is just a question of time before that horse will die with what we call mucoid degeneration of the liver. Some of them die of it in 6 months, others 8 months, others in a year. The horses have all to be killed, because they get sick. They don't have diptheria, but the toxin is working damage, in some way, and we don't know to what extent the immunity acquired

carries with it absolute freedom from harm, so far as that substance is concerned.

Q. Now, is there anything known to your profession,—any way known by which the nitrites, of the kind we are talking about, in this bread, made from bleached flour, become harmless, by reason of any immunity, or toleration, or anything of that kind?

A. There is no way known, to my knowledge.

Q. You said that sometimes these nitrites—I think attention was called to the fact by Mr. Elliott in one of these books, that nitrites are sometimes eliminated through the urine and you answered that, when finally eliminated, that was after the harm had been done. A. Yes, sir.

Q. Now, is that simply an illustration of a truth that applies to other poisons? A. Yes.

1260 Q. For example, are there other poisons which are poisonous, and known to be so by every one, which are eliminated? A. May I explain?

Q. Yes.

A. In order that a poison may exert its action upon the human organism, that poison must be,—unless it is a local poison. I mean by this, a poison which is acting constitutionally, that poison must be circulating in the blood, and if it circulates in the blood as such, it is bound to produce this poisonous effect. When it has produced this effect, provided the organism overcomes that effect, then the substance is excreted in the urine. In other words, everything that is found in the urine, has, at one time, been circulating in the blood. If we find nitrites in the urine, then there may have been nitrates in the blood, from which these nitrites were formed. That is to say, the nitrates were formed after the nitrites had exhibited their characteristic reaction, circulating in the blood of the individual. That is what I mean by that.

Q. Now, the suggestion was made that perhaps, in the process of digestion, these nitrites might be changed to nitrates, and that the nitrates might be harmless, and you made answer, as I caught your answer, that the probability was greater that nitrates will become nitrites? A. Yes, sir.

Q. And become injurious? A. Yes, sir.

Q. How does that happen?

A. The processes which begin to act in the intestinal tract are rather in the opposite direction. They are bacterial processes, to a certain extent, and especially the bacteria which reduce nitrates to nitrites are very commonly found in the intestinal tract. In fact, they are in the intestine of every person, and the chance for the formation of nitrates in the in-

testine out of nitrites are practically nil. It is the other way; that nitrates are transformed into nitrites, and that is how these cases of nitrite poisoning resulting from bismuth subnitrate are to be understood and explained.

Q. Now, in order that there may hereafter arise no controversy about the cases which you have referred to, which were reported by Beck, in Chicago, how is it known that it was not the bismuth that did the killing, or poisoning, instead of the nitrite?

A. There are a certain number of cases where the poisoning was due to the bismuth. When the bismuth salt was taken in all those cases you get the very characteristic picture of bismuth poisoning; and, in nitrites poisoning, in the other cases, again, we get the picture of both the bismuth and the nitrite poisoning. In the third class of cases, and those are the only ones to which I have referred, we obtain the picture of the nitrite poisoning. If there has been bismuth poisoning at the same time, you would be able to find the viscera. That is to say, in the liver, in the blood, in other organs. If you find no bismuth in the liver, none in the blood, none in the kidneys, none in the spleen, or other organs, then you can safely say that that patient did not die of bismuth poisoning. But, if he showed the characteristic signs of met-hemoglobin, you would know he died of nitrite poisoning.

Q. So that observers would readily distinguish between the two?

A. Yes. Bismuth poisoning is very observable. The mucous membrane of the mouth is turned black. The entire testinal tract is black, due to the formation of the sulphide of bismuth after absorption, and you may get enormous sloughs of the intestinal tract, called mucous membrane sloughs, and all that sort of thing.

Q. Mr. Elliott brought it out that children were particularly susceptible to the effects of nitrites, I think? A. Yes.

Q. Why is that? A. That is a very peculiar thing—

Mr. Elliott: I beg your pardon. I never developed any such thing.

1262 Mr. Butler: Yes, in answer to one of your questions, you brought it out that children were particularly susceptible to the action of nitrites.

Mr. Elliott: Oh, the witness may have said that. I didn't know anything about that.

Mr. Butler: I said you brought it out.

The Court: Proceed.

A. I meant that particularly about nitrite poisoning, from the taking of nitrates. Most of the fatal cases which are in the reports, are in children, and that fact—that peculiar fact led them to investigate to find out if the stools or intestinal contents of children differed in any way in their reaction towards bismuth subnitrate, from the stools of grown persons, and it was found that, if to a tube or any container which contained bismuth subnitrate, a quantity of a child's stool was added, there was formed a very large amount of nitrites, which were easily detectable by the reaction. If the stool of a grown person was taken, the amount formed was perhaps one-fifth, or one-sixth, or even less, as much. There seemed to be present in the child's intestine a peculiar form of the bacillus colli communis, as we call it, which is very much more active in producing nitrites than that which lives in the intestine of grown persons; so that nitrates given to children show a much greater tendency to produce nitrites, and consequent absorption, with poisoning, than in grown persons.

Q. One further question. In your opinion, would it be possible for anyone to develop such immunity from poisoning by nitrites that the hemoglobin would not be changed to the met-hemoglobin?

A. I cannot conceive of the possibility; no, sir.

Q. What is the character of the action,—chemically?

A. Pardon?

Q. Is the character of the action of nitrite upon the blood, a chemical action? A. It is a pure chemical action.

1263 A Juror: Doctor, poison oak, and poison ivy, and mushrooms,—what kind of a one is that—what kind of a poison?

A. Well, Doctor Acree, one of the witnesses in this case, has done a great deal of work around the poison oak and poison ivy and knows more about it than I do; but I can tell you a good deal about the poison of the mushroom. The best known mushroom poison is that which is contained in the so-called agarious muscarin,—the "fly mushroom",—which is not very common in these parts. It is a mushroom with a red hood—a very bright, red hood. The poison which is contained in this mushroom belongs to the same class, pharmacologically,—that is, in its action,—as nicotine, and pilocarpin. Those three—pilocarpin, nicotine, and the poison of the mushroom, called muscarin—you see, the Latin name is agarious muscarius, so they call it "muscarin"; muscarin, nicotine, and pilocarpin—those three drugs belong to the same class of poisons. They are not exactly alkaloidal in their nature. They are not alkaloids.

Mr. Scarritt: What did you say about pilocarpin?

The Witness: Pilocarpin?

Mr. Scarritt: What is that?

The Witness: That is a poison that is contained in Jab-orandi leaves. I don't know where they are gathered or where they come from.

Mr. Scarritt: That is a fatal poison?

The Witness: Pilocarpin?

Mr. Scarritt: Yes.

The Witness: It depends upon the dose. It produces profuse sweating. I was going to tell you about the action, if you wanted to hear about how these poisons act. Pilocarpin is a poison which is sometimes given to people with kidney disease, to make them sweat profusely. It does do that, and it also increases enormously the salivary secretion so that a man may secrete a quart or more
1264 of saliva in a very few hours. And this muscarin acts exactly the same way. These three drugs, muscarin, nicotine, and pilocarpin, act all the same way, in kind, only varying in degree; all have one kind of action, coming first or last. You may sweat first with the pilocarpin, and you may sweat last with the muscarin, but they all have the same series of action. If muscarin is given to a cat, under the skin, that cat will vomit, and it will urinate, and have diarrhea. Then, it will lie over on its side, and its eyes—the pupils of its eyes become like pin points; his respiration becomes very labored; his heart very rapid, because there is the same inhibition; there is the same paralysis of the nerve which controls the slowness of our heart; and, if he is left to himself, he will die very quickly from a very tiny dose. If, however, you give that cat a very small amount—a fraction of a milligram,—for instance, about 1/120th of a grain, if a cat had had only about 1-200th of a grain, or less—perhaps about 1/500th of a grain atropin, he will come to, almost immediately—that is, you can snatch him, as it were, from the very jaws of death. After while, he will raise his head; he will get up, and as a sign of comparative well-being, he will begin to lick himself. That is always a sign of comparative well-being. Now, these others, nicotine and pilocarpin, act very much like that, only you might get the pin-hole pupils first, and the action of the heart last, and so on, but you would have the same series of actions. You all know the effect of nicotine which is pro-

duced in young boys when they start to smoke. It is the same with the pilocarpin, only that, first of all, you get very pronounced sweating, before you get your diarrhea, and your vomiting, and your pronounced action on the heart.

By Mr. Elliott:

Q. I just want to ask you one question. You stated to Mr. Butler, that you considered the nitrite reacting material that was indicated in there, to be measurable. Now, I will ask you how you would measure that? Did you refer to 1265 comparing the colors? A. Yes.

Mr. Butler: I meant by the color.

The Witness: That is an analytical method in which we measure a quantity of nitrite. Our method of analysis include the color meter to compare with the standard color, methods of weighing, and methods of computing, and goes by the quantity we get in cubic centimeters, and all that sort of thing.

By Mr. Elliott:

Q. I just wanted to make that clear, that by measuring, you mean you simply compared the color with a known standard?

A. With a known standard; yes. Now, with your permission, I would like to say something about another poisonous mushroom, which is the most dangerous one in these parts of the country, and not generally recognized. It is the amanita muscaria—beautiful, white mushroom, and around the roots of the mushrooms are white gills—perfectly white gills. That is a mushroom that has caused more damage than any other, because it looks something like our field mushroom, which is one of the very best—the agarious compositis, but that differs from it in the fact that they have pink gills and not white gills and doesn't grow in such a pronounced bulb. There is no way of saving a person who is poisoned by the amanita mushroom. When you are poisoned by that mushroom, if you have taken enough to be fatal, no human hand can save you. We know no antidote to that poison.

Thereupon Court adjourned to meet again at 10 o'clock a. m., Friday, June 17, 1910.

1266

Morning Session.

Kansas City, Missouri, Friday, June 17, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Dr. Scott P. Child, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. Your name is Scott P. Child?

A. Scott P. Child.

Q. What is your business? A. I am a physician.

Q. Where? A. In Kansas City, Missouri.

Q. Engaged in the general practice, in the practice of medicine here? A. Yes, sir.

Q. And how long have you been so engaged?

A. Fourteen years.

Q. Fourteen years, in Kansas City during all that time?

A. No, sir, for three years of that time I practiced in Pennsylvania for eleven years in Kansas City.

Q. The eleven years last past here in Kansas City?

A. Yes, sir.

Q. Where were you educated in your professional line?

A. University of Pennsylvania in Philadelphia.

Q. When did you graduate there? A. In 1896.

Q. Are you familiar with the action of nitrite, nitrite of sodium and other nitrites?

1267 A. As drugs?

Q. Yes, and in the course of your practice have you had opportunity to observe the characteristic effect of the taking of nitrites?

A. Yes, sir.

A. Have you yourself administered it and watched the effects? A. Yes, sir.

Q. What is the characteristic effect of nitrites?

A. Nitrites are given as a rule in connection with heart and circulatory disease for the purpose of lowering a condition existing of elevated blood pressure, and administered as drugs in known doses. We find that there are certain characteristic symptoms and signs following the administration. The characteristic signs apparent to the eye, the flushing of certain blood vessels, especially of the face and of the upper parts of the body and extremities and alteration in the rate of the pulse and heart rate, and an influence upon respiration, and also certain changes in color which color we refer to the condition of the blood in the circulating vessels the peripheral circulating vessels.

Q. What is the characteristic change in color following the administration of nitrites?

A. I am speaking of therapeutic doses.

Q. Yes.

A. From my observation there is an increase in the redness of the skin due to the dilation of the peripheral blood vessels.

Q. Those are the blood vessels near the surface?

A. Of the skin, where a synosis or blueness existed previously, this redness is relatively more marked.

Q. Relatively more marked. Have you had opportunity to observe the effect upon the mucous linings of the stomach, and so forth, of repeated doses of nitrites? A. No, sir.

Q. Or upon digestion?

A. No, I have not; that would include the toxic doses
1268 or the giving of certain acids which are administered only in my practice for local application.

Q. Now you may assume for the purpose of expressing an opinion upon the points concerning which I will inquire, these facts, that the flour which was seized in this case was bleached by a process known as the Alsop process; that the bleaching resulted from the treatment of the flour with nitrogen peroxide gas which formed nitrous and nitric acid in flour; that the treatment was sufficient to substantially bleach or whiten the flour, and that bread made from this flour will contain nitrites, nitrite re-acting material, in measurable quantities. Now, assuming those facts to be true, I want to ask you whether or not the consumption of bread stuff made in whole or in part of this flour would injure or tend to injure the health of the consumers?

Judge Scarritt: We object to that, if Your Honor please, because the hypothetical question does not contain all the facts in evidence necessary to present to the expert witness.

The Court: Objection is overruled.

To which ruling of the court claimant then and there duly excepted.

The Court: You may answer it.

A. Knowing the physiology of digestion of proteids, carbohydrates and fats as accepted today, and knowing the recognized and acknowledged condition of bread as made naturally and normally, which makes it possible for the ferments of the different digestive glands to act upon and digest the component food products in the bread, the introduction of any substance which, as has been demonstrated is present in the bleached flour as nitrites and nitrates and from which nitric and nitrous acids have been obtained, and in my practice in medicine which has to do with the prescribing of diet, including bread, I must assume that the presence of these deleterious, poisonous products in any quantity must limit the digestive power of the ferments which act under certain normal known conditions.

1269 Q. And the effect of the continued and customary use of such foods upon health, or the tendency, what can you say of that, if anything?

A. The continued persistent use of such food would lessen the digestibility of such food and necessarily limit the amount of certain products digested and absorbed, and thereby would necessarily limit the normal nutrition, and the maintenance of what is termed the metabolic equilibrium of the human individual.

Q. What are we to understand by the metabolic equilibrium?

A. By metabolic equilibrium we have in mind those destructive and constructive forces going on in the normal health of the individual for the maintenance of health and life, and that is brought about by the introduction of food through the normal digestion and absorption and assimilation.

Q. Now, you may assume for the purpose of expressing your opinion that the treatment of this very flour which has been seized by the nitrogen peroxide gas mixed with air has rendered the same less digestible than it would have been had it not been bleached by that bleaching medium; and further assume that a poisonous substance—nitrites—has been added to the flour, and ask you whether or not, in your opinion, the introduction of such poisonous substance and the impairment of digestibility would render food made from the flour injurious to health or tend to render it injurious to health?

A. It would, in my opinion.

Judge Scarritt: I object to that, if Your Honor please, because the question is based upon the assumption of other expert witnesses, not upon the testimony as the facts in the case.

The Court: Objection is overruled.

To which ruling of the court claimant then and there duly excepted.

A. It would, in my opinion.

Q. Now, why so?

A. Because the presence of these substances stated as having been found are not normally present in these digestive juices or in the food products themselves. The
1270 digestive juices from long periods and centuries of addiction have accustomed themselves to digesting the starches of the proteids as found in the cereals which have been treated without the introduction or presence of the elements which are introduced in this particular flour.

Q. Now, as to the effect upon health of the delay in the process of digestion, what is the effect or tendency of that, assume the flour before bleaching, food stuffs made from flour before bleaching would digest more promptly, more quickly

than the same flour would if it had been bleached, what would be the tendency of the delay? A. The tendency—

Judge Scarritt: Same objection as to the last question.

The Court: Like the ruling.

To which ruling of the court claimant then and there duly excepted.

A. The tendency in delayed digestion from the normal periods of digestion expected would be that a portion of this food would be carried through the gastro-intestinal tract, and could not be absorbed and so keep up the normal state of health of the individual.

Q. That is, some of the food would pass by excreted without digestion at all? A. Without digestion and absorption.

Q. I think that it all.

Cross-Examination

By Mr. Elliott:

Q. Doctor, as I understood your testimony you are familiar with nitrites only in using them as a drug, is that correct?

A. Yes, sir.

Q. And their use in therapeutic doses?

A. In therapeutic doses.

Q. That is to say such doses as you give for any—for some specific disease?

1271 A. Yes, sir.

Q. Or diseased condition. Now, what doses have you been accustomed to give to your patients?

A. I will state that so far as the use of the particular forms are concerned that I have used amyl nitrite and nitro-glycerin; that on nitro-glycerin I consider the patient's condition, watching it closely, and am governed by the approach to toxicological changes in the amount that I give whether it is one-hundredth of a grain or one-fiftieth of a grain of nitro-glycerine.

Q. I see I did not make my question quite specific enough. Let's take the case of—you don't understand there is any nitro-glycerine in here, do you?

A. I understand that there is not.

Q. Let's take the case of sodium nitrite, we'll say some inorganic nitrite, just let me ask what has been your practice with nitrite as to the amount you have given in doses?

A. So far as my practice is concerned I don't use it; I know of its use.

Q. I understood, maybe I am mistaken, but I understood you to say that you are familiar with the use of nitrites but you were not referring to sodium nitrite then?

A. No, sir, nitro-glycerin is converted—

Q. You have not given nitrite—sodium nitrite?

A. I have not.

Q. You have never given that at all?

A. As a drug.

Q. Have you ever given it?

A. I don't know if I get your meaning.

Q. Have you ever given it at all? A. No, sir.

Q. Do you know what the standard dose, what the dose given in the United States Pharmacopieia is, what is recommended?

A. From a half up to two grains; larger doses have been given.

1272 Q. Well, my information is it is from one to three grains.

A. I said half to two grains; larger doses have been given.

Q. As a matter of fact have not as high as twenty grains been given in one dose?

A. I understand that it has.

Q. In cases of asthma, for instance, isn't it, is it within your knowledge that as high as twenty grains have been given to the patient?

A. It is within my knowledge that as high as ten grains, I don't want to say that twenty grains.

Q. Then your knowledge of nitrites as you have given it here is simply based on what you have been told or what you have heard has been given and as to the use of amyl nitrite in nitro-glycerin? A. In nitro-glycerin.

Q. And you yourself have never given sodium nitrite?

A. I have not.

Q. Then from personal observation you don't know the effect of sodium nitrite?

A. Not from personal observation, no, sir.

Q. And the effects that you have been describing produced by nitrites are to be ascribed to nitrites taken in considerable doses, such as a grain or a grain and a half or two grains, is it not, or more? A. Are you referring to the toxic—

Q. Well, you describe the flushing of the face, and things of that kind. A. Of the small doses.

Q. What do you mean by small doses, I understand you say you have not observed those symptoms yourself?

A. I was giving the symptoms formed from the action of the nitrites.

Q. You are giving—I don't want to be rude at all, but weren't you giving what you can find in the textbooks
1273 as to the effect of large doses of nitrite, what the textbooks give you as the result?

A. Along with my observations in the use of nitro-glycerin and amyl nitrate.

Q. But that is not sodium nitrite, I am speaking about sodium nitrite and inorganic nitrite.

A. I have not given either.

Q. And I say all you know about it, then, is what you can read in the textbooks, is that not so? A. Yes, sir.

Q. And I understood you to say in answer to the question from Mr. Butler that you had never observed any impairment in digestion from giving repeated doses of sodium nitrite?

A. I have not from the giving of repeated doses of sodium nitrite.

Q. He did not limit his question, however, to sodium nitrite; I think he said nitrites generally, and your answer would apply to nitrites generally, would it?

A. I have to say that the question I would like repeated if that is—

Q. Well, I understood, Mr. Butler to say—to ask you if you had ever had any opportunity of observing inflammation of the stomach, I think it was, Doctor?

Mr. Butler: I think I said irritation; I don't think I said inflammation.

By Mr. Elliott:

Q. I don't care for the word irritation of the stomach or impairment of digestion by the giving of repeated doses of nitrite and you said no, is that correct?

A. As I understood the question it was in connection with food containing the nitrites.

Q. Well, have you ever seen—noted any impairment of digestion by the giving of repeated doses of nitrites?

A. I have to giving of nitro-glycerin.

Q. Now, then, as to the inorganic nitrite such as sodium nitrite? A. I have not.

Q. You have not. Now, then, have you ever noted any
1274 impairment in digestion by the eating of foods containing nitrites? A. Not to my knowledge.

Q. What experience, if any, have you had with observing bread that has been made from flour bleached under the conditions assumed in Mr. Butler's question to you?

A. I have no positive observation.

Q. You have never compared the digestibility of bread made from the unbleached flour and bread made from the same flour bleached, have you? A. I have not.

Q. If a scientist in whom you had absolute confidence should state to you that he had compared the relative digestibility of bread from unbleached flour and made from the same flour bleached, and he found that the rate of digestion of the bleached flour or the bread from the bleached flour was either more rapid or less the same as the unbleached flour, as

the bread from the unbleached flour, would that tend to modify your opinion?

A. From my knowledge of physiology and digestion it would not.

Q. It would not, but you have made no experiment yourself? A. I have not.

Q. And you would not take the word of a reputable scientist, someone in whom you had confidence, who actually made the experiment and demonstrated to you, you say that would not affect your opinion?

A. In medicine we do not accept restricted, limited experiments; they have got to be carried over a very large series of cases for a long period of time.

Q. All right, let's assume, that, suppose that has been done.

A. It will be a matter of years and probably many years to prove.

Q. Then you think that—we had an experiment here where a gentleman brought in two tubes containing a gluten
1275 from the bleached and the unbleached flour and it was shown to the jury and introduced as exhibit as illustrating the relative digestibility of the two; you think that is worthless, do you, it would not show anything; you think one experiment would not demonstrate that, do you, would you say that experiment was worthless?

A. I would not say it was worthless.

Q. Well, does it demonstrate anything in your opinion?

A. Nothing positive.

Q. Sir?

A. Nothing positive excepting in that individual case, would not demonstrate anything except in that individual case.

Q. Suppose that it demonstrated that the bleached flour, the gluten from the bleached flour had digested the more rapidly, what would you say?

Mr. Butler: You don't claim any such thing, do you?

By Mr. Elliott:

Q. Suppose it had shown that the bleached flour had digested the more rapidly, what would you say, would you give any weight to it?

A. From your statement simply to say yes or not, I would say I would not give any weight to that experiment.

Q. Suppose it had shown that the unbleached flour had digested the more rapidly, would you give any weight to it, or would you give the same weight to it and no more than you would give to the other?

A. It would bring up the question of the experiment carried on in the laboratory and the experiment over the function as it exists within the human system.

Q. Well, I think it is very simple. I understood you to say that you could not demonstrate this question of the impairment of digestion of bread unless you conducted experiments over a long period of time, is that correct? A. Yes, sir.

Q. Then I say as to the single experiment, your judgment would be then that that would not demonstrate anything one way or the other, is that correct, is that so?

A. It would not demonstrate anything positively.

Q. All right, that is satisfactory. Is raw flour digestible?

A. Yes, sir.

Q. You think it is; did you ever try it? A. Yes, sir.

Q. Sir? A. It is digestible to a degree.

Q. I say did you ever try it?

A. Try it—I have eaten raw flour.

Q. The powder? A. I have eaten raw flour.

Q. And you say it is digestible to a degree, just what do you mean by that?

A. Physiologically we find that foods in different conditions are either more or less digestible, and to say that raw flour is digestible does not say that it is as digestible as cooked flour.

Q. Yes, of course I quite agree with you, but my question is, is raw flour, I mean flour that we take out of this bag in powdered form, take a large dose of it—well, let's say a tablespoonful of it, would that be digestible? A. Yes, sir.

Q. You think it would, you think it would all digest if you swallowed it? A. I would not say that it would all digest.

Q. You mean some of it probably would be digestible, is that what you mean? A. Yes, sir.

Q. Now, I understood you to say as a basis for your opinion that nitrites such as you were asked to assume might be in the bread made from bleached flour, that nitrites were not, did you say in the gastric juices or not normal in the gastric juices, I think?

A. I was not asked any such question. They are not normally in the gastric juices.

Q. Let me see, I cannot just recall your testimony, he asked it something like this: You formed the opinion that this might be harmful because they were not normally in the juices that make digestion or cause the digestion of food, is that it?

A. Yes, sir.

Q. Now, have you any knowledge as to the presence of nitrites in the saliva?

A. In the normal saliva as secreted by the salivary glands we do not find nitrites present.

Q. All right, sir. Now, let's take saliva after you get it into the mouth and ready to swallow it, have you any knowledge as to the occurrence of nitrites in the saliva?

A. Yes, sir.

Q. It is inevitably there, isn't it? A. Yes, sir.

Q. Now, then, with your food, bleached flour, a man eating food must swallow a certain percentage of nitrites with his food, mustn't he? A. Yes, sir.

Q. And sometimes—or I will ask you also, is it within your knowledge that certain natural food products and certain mixed foods as we buy them on the market, are prepared for to eat, contain a certain amount of nitrites, can they?

A. Yes, sir.

Q. And in eating those foods he would inevitably swallow a certain proportion of nitrites, wouldn't he? A. Yes, sir.

Q. And these things would inevitably go into his stomach and mix with the gastric juice or whatever acts on the food?

A. Yes, sir, the presence of the nitrites in the saliva is due to the presence of—

1278 Q. We have had all that, Doctor,—you have not been here—it has been thrashed out thoroughly—I was not trying to establish by you that they are there or not. I am just rather assuming, you say they would inevitably be there in the saliva, and that is all I care for.

Mr. Butler: Let him answer if he desires to.

Mr. Elliott: I have no objection, I simply want to save time.

The Court: Let me suggest, it has been very thoroughly covered that it looks to me like duplicating it.

Witness: The only reason that I wish to answer—

The Court: You may tell your views generally if you care to, but don't go into details unless counsel for one side or the other desires it.

A. The fact is that the bacteria present in the gastrointestinal tract, and in the saliva producing the nitrites represent an abnormal condition, and their presence tends to impair health, and so far as they produce the nitrites, that tends to impair the health of the individual and to keep him below what I stated as the metabolic equilibrium.

By Mr. Elliott:

Q. All right, sir; but the fact is whether it impairs health or not, that inevitably mankind as we know it is constantly swallowing saliva containing nitrites and is constantly eating foods containing nitrites, isn't that true? A. Yes, sir.

Q. And if there is any impairment of digestion from nitrites he will have it with those things just to the degree that they are there, the same as he would have it with this bleached flour, wouldn't he? A. Yes, sir.

Q. All right. In breathing air is it within your knowledge that he breathes a certain percentage of nitrites?

1279 A. He does in certain regions, in certain districts, where it is artificially produced.

Q. Take it in the country. I don't know what you mean by artificially produced, take it away out in the country, away from the cities, isn't a certain percentage of nitrites in the air, or if you don't want to say nitrites, nitrite re-acting material?

A. There is a very small portion in the last regions.

Q. And in drinking water doesn't it frequently occur that nitrites are in potable drinking waters,—waters that any water analyst would pass [—] a table and good drinking water?

A. It is perhaps a question as to whether he would consider it a good drinking water, though commonly used.

Q. My question was, a water that he would pass as a good potable drinking water containing a certain percentage of nitrites, that is common knowledge, isn't it, Doctor?

A. Yes, sir, though I would like to qualify it.

Q. Well, go ahead, you answered the question.

A. It is recognized that their presence frequently, if not usually indicates the presence of organic matter which is deleterious to health.

Q. Yes, in other words, the presence of nitrites in water may indicate that at some point there is contamination, but I think we have also had, if not, I will ask you if the examination is made and no contamination is found, isn't it a fact that in these small amounts those waters will be passed as perfectly good drinking waters? A. They are.

Q. That is all.

1280 Dr. Robert T. Sloan, called as a witness on the part of libellant, being duly sworn, testified as follows:

Direct Examination

By Mr. Butler:

Q. I did not get your first name, Doctor?

A. Robert T. Sloan.

Q. Where do you live?

A. Kansas City, Missouri.

Q. You are practicing? A. Internal medicine.

Q. And where were you educated as a doctor?

A. In the Kansas City Medical College, now a part of the Kansas University, and in the Medical Department of the University of New York.

Q. How long have you been engaged in the practice of medicine?

A. Twenty-five years.

Q. Have you done any teaching? A. Yes, sir.

Q. Where?

A. At the Kansas Medical College, and later at present in the medical department of the Kansas State University.

Q. What subjects do you teach?

A. I taught physiology for some years, the last eight or ten years I have been teaching medicine.

Q. Internal Medicine? A. Internal medicine.

Q. That has to do with the effect of drugs upon health?

A. Yes, sir.

Q. And various substances, you have been teaching that regularly for the last eight or ten years?

A. Yes, sir.

1281 Q. At the University of Kansas?

A. Well, the last five years in the University of Kansas; prior to that in the Kansas City Medical College which was absorbed by the University of Kansas.

Q. Yes, sir. My [understand] is that the University of Kansas is situated at Lawrence not far from Kansas City?

A. Well, the medical department is situated in Rosedale, a suburb of Kansas City.

Q. So that the medical college of the University of Kansas is practically in this city?

A. Yes, sir.

Q. It is very desirable, isn't it, in medical and surgical institutions to have it near clinical material and sick people?

A. Yes, clinical material.

Q. Near centers of population. Now, Doctor, we want to take your opinion about a hypothetical question which I will ask, and in which I will ask you to assume certain facts. This is a proceeding by the Government to condemn as adulterated certain flour. You may assume to be true that the flour seized, complained of, was bleached by a process known as the Alsop process, which bleaching was affected by treating the flour with nitrogen peroxide gas mixed with atmospheric air to such an extent that the flour was substantially whitened; that upon such treatment the gas coming into contact with the flour and the moisture contained therein, there was formed in that flour two acids, nitric acid and nitrous acid, and there was added thereto poisonous substances, among them nitrites, organic and inorganic; you may further assume that this flour, and food stuffs made in whole or in part by its use, was by this treatment rendered less digestible than it would have been had it not been so treated; and you may further assume that upon the consumption of bread containing these nitrites so added an effect would be had upon the blood of the consumer depending in extent upon the quantity of nitrites consumed in the bread; that the effect is a chemical

1282 one, changing the hemoglobin of the blood to met-hemoglobin, and upon these facts I want to get your opinion as to whether or not the continued and customary use of bread made from such flour would be injurious to the health of consumers or tend to be so injurious? See p. 436.

Judge Scarritt: Just a moment. I object to that, Your Honor please, because the question does not include all the testimony necessary to present the hypothetical question to the witness; further, it is based upon the assumption of opinions of other witnesses, and, third, that it invades the province of the jury, and calling for a decision of the issue that is involved in this case, calling for a decision of the issue that is involved in this case.

The Court: Objection is overruled.

To which ruling of the court claimant then and there duly excepted.

Q. Go on, doctor, you may answer.

A. In my opinion that would be the tendency.

By Mr. Butler:

Q. What would be the tendency, doctor?

A. To be deleterious to health.

Q. Upon what do you base that opinion, either in your experience or professional learning?

Judge Scarritt: I object to that because he has already said that he based it upon the hypothetical question.

Q. Well, I mean the reasons for his opinion, of course it assumes the facts.

Judge Scarritt: For the reasons asked in the hypothetical question. When that is answered why as far he is concerned that ends it. We object to it for that reason.

The Court: You may answer it; go ahead, doctor.

To which ruling of the court claimant then and there duly excepted.

A. I base it upon my knowledge of the effect of nitrites on the economy in the body as used in medicine.

1283 By Mr. Elliott:

Q. We can not hear you down here.

A. I say I base my opinion upon my knowledge, both clinical experience and the knowledge acquired from general reading, of the effect of nitrites as we use them in medicine on the body.

By Mr. Butler:

Q. What would be the effect upon blood pressure, temperature and the like if there would be any effect of the customary use of food stuffs made from bleached flour containing it, which food stuffs would contain nitrites.

A. In my opinion the continued use of small doses of nitrites day after day, month after month, the tendency would be to depress the blood pressure, to lower it, and to even cause a lowering of the body temperature to a slight extent.

Q. Now what is the effect, if there is any, upon health and the reduction of the blood pressure and the lowering of bodily temperature?

A. It diminishes the natural nutritional acids of the body, makes the individual less resistant certainly to fatigue and conditions of that sort, possibly less resistant to the ravages of infectious diseases, possibly degenerative diseases.

Q. Now is the impairment of the power of resistance to these things which you have referred to considered by your profession a grave matter?

A. Yes, it is injurious to the health, making it more difficult to maintain health, certainly more difficult to maintain the usual body strength and vigor.

Q. Have you yourself had to do with cases of lower blood pressure and lower bodily temperature so as to be able to—

Judge Scarritt: Nitrites you mean?

Mr. Butler: Well, perhaps he don't know the cause, I am not sure, he may not know nitrites were in the bread, I am not sure.

Judge Scarritt: I object to it because outside of the issue in this case.

1284 The Court: He may answer that.

A. I have seen many such cases.

Q. Where? A. Where do you say?

Q. Yes.

A. In my office and at their homes.

Q. You mean in practise here in the vicinity?

A. Yes, sir, in my practice.

Q. And when?

A. I suppose I see them every week when I am at home; that is when I am in the city doing business.

Q. What is the remedy, if you know, for such a condition of affairs? A. Well, now, that is a long—that would require a long answer.

Q. Then I will not ask the question.

A. It is an exceedingly difficult condition to remedy.

Q. And is it considered a serious condition? A. Yes, sir.

Q. Now with respect to the character of persons suffering from such depressed blood pressure and lower temperature, are they children, or women, or men, farmers or professional men?

A. We see them among men, women, farmers and people in the city. They are observed most frequently among that class of patients that we say are suffering from nervous exhaustion.

Q. (By Judge Scarritt) From what, doctor?

A. Nervous exhaustion, neurasthenia.

By Mr. Butler:

Q. Now what would be the effect upon persons having neurasthenia, or neurasthenia, as I sometimes call it, of the consumption of bread and other food stuffs made from flour containing these nitrites?

A. Well, I should think that the tendency would be for them to suffer more than normal individuals would, 1285 the circulation, blood pressure, their temperature being more depressed.

Q. I think that is all.

Cross Examination

By Judge Scarritt:

Q. Doctor, did you ever diagnose a case as nitrite poisoning from eating bread in any patient? A. No, sir.

Q. All these people that you talk about having low blood pressure are people that you could ascertain, either reasonably or with some certainty, by reason of their past history, their past work or past employment or habits, that occasioned the symptoms that were brought to you?

A. On the contrary, I could not.

Q. You could not?

A. In the majority of the cases, no, sir.

Q. In the majority of cases? A. No, sir.

Q. That is if a person has nervous prostration he has low pressure of blood?

A. No, I didn't say that.

Q. Nervous exhaustion I meant to say?

A. Many cases of nervous exhaustion so-called, have a sub-normal temperature much of the 24 hours, and a low blood pressure, not all of them.

Q. But you never attributed that to their eating bread with nitrites in it, did you?

A. I don't know what the cause of it is.

Q. I say you never did that, did you? A. No, I never did.

Q. Well, now, doctor, if a patient comes to you, or you examine anybody you want to know what the history of that person is with reference to what he claims to be suffering from and what the symptoms are, don't you? A. Yes, sir.

1286 Q. Now if the symptoms of nitric poisoning are a red face, red shoulders and red breast and suffocation in breathing, those things that you can see, they indicate what the trouble is, don't they, and when you have those symptoms, why, you attribute the disease to what you know precede the symptoms, don't you?

A. There is a great difference between acute and chronic poisoning; they are not alike at all.

Q. If anybody is suffering from poison by eating bread three times a day it is apt to be chronic, isn't it?

A. Yes, sir.

Q. And if nitrite poisoning, as has been testified to here, without any reference to whether it was acute or chronic, produces certain symptoms, why those symptoms would appear wouldn't they?

A. As far as I know there has been no testimony as regards the symptoms of chronic nitrite poisoning.

Q. Well, then this testimony here is of no account then as far as this case is concerned, it has been given here without reference to whether it is chronic or acute, if the symptoms of nitrite poisoning consisted of a flushing, of a flush of the face, of the shoulders of the chest, exhaustion, and irritation and suffering from closeness of breath or suffocation?

A. The symptoms of acute nitrite poisoning are very much such as you have described.

Q. Such as I have described?

A. Yes, sir, acute poisoning.

Q. Now what are the symptoms of chronic nitrite poisoning? A. That is what I don't know.

Q. Nobody else knows do they? A. No, sir.

Q. Because no case has ever occurred has it?

A. I presume that I have seen many cases.

Q. You presume so? A. Yes, I believe it.

1287 Q. But you never could trace it, could you?

A. No, sir.

Q. And nobody knows what the real symptoms of chronic nitrite poisoning are if there are any, do they?

A. Nobody knows.

Q. You are a good diagnostician?

A. Nobody knows definitely.

Q. And your specialty is, or rather your general work or most of your work is diagnosing cases, isn't it?

A. No, that is part of it.

Q. A good deal? A. That is part of it.

Q. Well, you pay particular attention to them? A. Yes.

Q. Got a knack for that and you have tried to find out these things, haven't you?

A. No, but I know of no more reasonable hypothesis.

Q. That is not answering my question.

Mr. Butler: Let him answer.

Judge Scarritt: I want him to answer but not to argue it.

The Court: Proceed, it can be brought out on re-examination if desired.

Q. Now you give your patients arsenic sometimes, don't you? A. Yes, sir.

Q. Do you give them arsenic to make them better, do them good? A. Yes, sir.

Q. You give it to them in small doses, don't you?

A. Sometimes, I don't give them any poisonous dose as a rule.

Q. You don't give it to poison them but you give it in such doses as you think will do them good?

A. Yes, sir, that is my intent.

Q. And you give them strychnine? A. Yes sir.

1288 Q. For the same purpose and the same reason, whereas if you had given them what you call poisonous doses, they would have been fatal and would have injured them, wouldn't they? A. Not necessarily fatal.

Q. Well, if you gave them large enough dose it is fatal?

A. Yes, if you give them enough it is fatal.

Q. So if you give them doses which are not necessarily fatal, it would impair their health, wouldn't it, in large doses?

A. Yes.

It is conceded by both parties to this action that I. S. No. 9127 B is the same as "Purity" sack of flour marked as "Exhibit 12".

Hannah L. Wessling, recalled as a witness on the part of libellant, further testified as follows:

Direct Examination

By Mr. Butler:

Q. Miss Wessling, did you make a determination of the ash content of the flour contained in the sack marked "Exhibit 12"?

A. I did.

Q. How much is it? A. 0.48.

Q. Yes, some amount less than half of one per cent?

A. Yes, sir.

Q. Did you make more than one determination?

A. I made two.

Q. What did you get each time?

A. The first time I had .486, and the second time .487.

Q. 0.486 once and 0.487 the next time? A. Yes, sir.

1289 By the Court:

Q. 1/1000 of difference? A. Yes, sir.

Cross-examination declined.

A. V. H. Mory, recalled as a witness on the part of libellant further testified as follows:

Direct Examination

By Mr. Butler:

Q. Your first name again, Mr. Mory?

A. Austin is my first name.

Q. You testified here before? A. Yes, sir.

Q. With respect to the analysis of the—he is in charge of the laboratory in this city—and you testified concerning the analysis of a certain substance taken from the pipe. Did you make a determination of the ash content in the sack marked “Exhibit 12” the flour branded “Purity” which is in evidence here? A. Yes, sir.

Q. What did you find it to be?

A. 48/100 of one per cent.

Q. That is 0.48? A. Yes, sir.

By the Court:

Q. No decimal beyond that?

A. I made two determinations, the first one .481, the second .482.

Q. (A jar marked “Government’s Exhibit 50” one kilogram of flour seized is shown to the witness). Mr. Mory, did you measure the contents of that bottle?

A. I weighed and placed into the jar the flour that is in there.

Q. And how much flour is there?

A. There is one kilo or 1,000 grams.

1290 Q. And the label shows of the flour seized?

A. The flour was delivered to me by Mr. Winslow and said by him to be the flour seized.

Q. Do you know whether it is the sack he brought two sacks from Greencastle?

A. I presume so, he can tell you that.

By the Court:

Q. That is about a quart and a half or something like that?

A. It is a little less than a quart and a half, a little over a quart, not much, about 9/10 of a—

Mr. Butler: I understand that is flour from "Exhibit 13" that may be conceded.

Mr. Elliott: Yes, sir, sure.

Mr. Butler: It is offered in evidence.

Q. (Now "Exhibit 51" is called to the attention of the witness) What is that?

A. It is nitrogen peroxide gas.

Q. In what dilution? A. Five times with air.

By the Court:

Q. Sir? A. Diluted five times with air.

By the Court:

Q. Five parts air?

A. One part of nitrogen peroxide to four parts of air, and five parts altogether.

Judge Scarritt: Let me understand that.

Mr. Butler: Four parts of air and one of nitrogen peroxide, so if you divide the quantity by five you get the pure peroxide gas.

By Mr. Butler:

Q. Now what do you call this glass, has it any—

A. That is a measuring cylinder, it is treated in cubic centimeters that has a capacity indicated of 100 cubic centimeters.

Q. The capacity estimated to the extreme top is about?

A. 125 cubic centimeters.

Q. So you would say that in that bottle there is 125 centimeters of nitrogen peroxide gas diluted with air as four to 1? A. Approximately that, very close to that.

1291 Mr. Butler: That is offered in evidence.

Q. ("Exhibit 52" is called to the attention of the witness) On this card appear to be three little glass holders and something in each one of them. What is in each one of them?

A. I will have to see the card, I can't tell it from this distance.

Q. What is the substance?

A. In the one at the left there is sodium nitrite, in the one in the middle there is a mixture of sodium nitrite and sodium nitrate, the one on the right contains sodium nitrite.

Q. For the purpose of indicating the quantities expressed in milligrams have you computed in terms of nitrite of sodium the amount of nitrite of sodium that would be introduced into one kilogram of the flour seized, assuming that there was found

1.8 parts per million of nitrite reacting material calculated to the terms of nitrogen? A. I have.

Q. How much would there be of nitrite of sodium?

A. There would be nine milligrams nitrite of sodium, that is to say, nine milligrams of nitrite of sodium expressed as nitrite of sodium, the nitrous nitrogen 1.8 expressed nitrate of soda, and it would be 9 milligrams.

Q. Yes, that is what I am getting at.

A. That is nine milligrams to the kilogram of flour.

Q. Now assuming the [equivocal] chemical or molecular quantity of nitrate of sodium have you computed the volume—amount of both the nitrite and the nitrate of sodium?

A. That is, I have computed the nitrate which is associated necessarily with this 1.8 nitrous nitrogen, I have.

Q. And what amount would that be?

A. Nine milligrams of sodium nitrite and 10.8 milligrams of sodium nitrate to the kilogram of flour.

Q. Yes, now what do you call these glasses, is there any name?

1292 A. I simply made those myself out of a little glass tube.

Q. In this little glass holder indicated on "Exhibit 52", by the figure 1 how much sodium nitrite is contained in that?

A. Nine milligrams as I said.

Q. And in the little holder marked 2 how much nitrite and how much nitrate?

A. Nine milligrams of nitrite of sodium, and 10.8 milligrams of the nitrate of sodium.

Q. And in the little holder marked 3 on "Exhibit 52" how much?

A. In the little holder marked 3 at the right there are 65 milligrams or one grain.

Q. Of nitrite of sodium? A. Of nitrite of sodium.

Q. What is in the "Exhibit 53"? A. The same flour.

Q. How much? A. One pound avoirdupois.

Mr. Butler: That is introduced in evidence.

Q. What is in "Exhibit 54"?

A. Nitrogen peroxide gas diluted five times that is one part of gas to four of air.

Q. And how much is the total volume?

A. Very close to 57 cubic centimeters; it is only approximate in that case, but I took the exact amount, I took 11.4 cubic centimeters in the nitrogen peroxide the calculated amount, and diluted it to the cylinder full which is 57 cubic centimeters.

Q. And that is scaled on here what?

A. Cubic centimeters.

Q. And to get at the amount of pure peroxide divide the total by five? A. By five.

By Mr. Elliott:

Q. You say that contained 57 centimeters?

1293 A. I say that I introduced 11.4 cubic centimeters of nitrogen peroxide and diluted to the cylinder full to the cork; it is not crowded all the way up but I estimated that is the approximate dilution, the quantity of nitrogen peroxide would not be as accurately introduced, accurately measured, and that is about five times dilution 57 I gave is five volumes of the 11.4 CC.

Q. "Exhibit 55" you may tell what is on that card?

A. In the left hand position the small glass tube marked No. 1 there are 4 milligrams of sodium nitrite, equivalent of 1.8 milligram per kilogram, that is to say, parts per million, of nitrous nitrogen present in the one pound of flour in question.

Q. That is on the assumption that it shows 1.8?

A. 1.8 parts per million of nitrous nitrogen which is the equivalent of 1.8 milligrams per kilogram.

Q. Now is that a weighable amount according to chemical principles?

A. Oh yes, the ordinary analytical balance takes accounts of 1/40 of that amount, and this amount is weighed accurately to 1/40 of the quantity present or 1/10 of a milligram.

Q. Yes. Now assuming that a kilogram of flour was treated with 25 cubic centimeters of the gas, the flour contained in "Exhibit 50" would then be subject to the amount of nitrous peroxide, nitrogen peroxide gas which is contained in "Exhibit 51"?

A. According to the average quantity given in the testimony in this case my own experience—

Q. I know, I say assuming that it be treated by 25 parts—

A. Yes, sir.

Q. 25 cubic centimeters to the kilogram— A. Yes sir.

Q. Then this quantity of flour in the jar which is marked one kilogram would be subject to a volume of gas—

A. Yes, sir.

Q. In different dilutions to be sure— A. Yes sir.

Q. Equal to that contained in 51? A. Yes sir.

Q. And there would be introduced into the flour nitrites to the quantity of 9 milligrams? A. Yes sir.

Q. If the flour showed only 1.8 parts to the million of nitrites calculated in terms of nitrogen?

A. Yes, sir.

Q. And the "Exhibit 53" one pound of flour if treated by this bleaching process with the corresponding volume or a volume corresponding to 25 cubic centimeters to the kilogram

would be subject to the amount of gas contained in "Exhibit 54"? A. Yes, sir.

Q. And there would be added nitrite reacting material which in terms of nitrite of sodium would be four milligrams?

A. Four milligrams.

Q. And the corresponding nitrites indicated?

A. Yes, sir, nine milligrams altogether.

Q. And the one grain of nitrite of sodium on "Exhibit 52"?

A. The same on each card.

Q. And on "Exhibit 55" is placed here simply to indicate the relation of one grain?

A. Well, further than that to indicate what is given in the United States Pharmacopoeia as the average dose of sodium nitrite.

Q. The average medicinal dose of sodium nitrite?

A. Yes, sir.

Q. I think that is all.

Cross-Examination

By Mr. Elliott:

Q. Just let me see if I understand what these things are. If I understand your testimony you say that if you take 125 cubic centimeters of the mixture such as contained in "Exhibit 51" which is peroxide of nitrogen and air in proportion of one to four, as one of peroxide and four of air, that you will have in a kilogram of flour nine milligrams of nitrite reacting material reaction as sodium nitrite? A. Yes, sir.

Q. That is correct, is it? A. That is correct.

Q. And this little receptacle on the left in "Exhibit 52" No. 1, in receptacle No. 1 at the left of "Exhibit 52" contains the quantity of sodium nitrite which you have calculated?

A. Corresponding to 1.8 milligrams of nitrous nitrogen to the kilogram of flour, that is if that is the first card analyzed.

Judge Scarritt: 52.

1295 A. I can't tell them from this distance. (Counsel hands exhibit to the witness) Yes, sir, that is correct.

Q. Now you did not as a matter of fact get any sodium nitrite from this flour? A. Oh, no.

Q. And you have simply calculated that if there is 1.8, an amount equal to 1.8 per million of the nitrite reacting material in this kilogram of flour, and it has been treated with 125 cubic centimeters of the mixture of peroxide of nitrogen and air, in the proportion of one of peroxide to four of air, it will contain nine milligrams of sodium nitrite?

A. Well, I would not restrict myself to the dilution indicated here; that was only a method of showing the quantity of

the gas, of course, the treatment would not imply that strength gas at all.

Q. Well, I thought you intended to give a direct relation.

Mr. Butler: I showed him different dilutions.

Q. I am trying to get, I understood there was a direct relation between this amount of the mixture and this amount of sodium nitrite which you have calculated?

A. Mr. Elliott, consider these two as this being the cause and this the effect, then divorce that from the—

Q. 51 and 52.

A. From the flour, and consider this as representing the container and the thing contained.

Q. All right then, this Exhibit 51 has no necessary relation, has it, to the nine milligrams of sodium nitrite?

A. No, sir, if I were to calculate all the nitrite and nitrous acids—

Q. Well, that is all right.

A. Represented by that solution I would have as much as a grain of—

Q. Then Exhibit 51 has no necessary relation to this kilogram of flour or to tube No. 1 of Exhibit 52?

A. Except as my experience shows that the quantity of NO₂ is found necessary to produce the effect found in this flour. Now in considering these little exhibits I agree the gas is not to be taken into consideration.

1296 Q. All right, now let's get at it that way then, is this the fact, that assuming that this kilogram of flour contains 1.8 per million of nitrite reacting material, you say it contains nine milligrams reaction as sodium nitrite, you say it contains nine milligrams reaction as sodium nitrite?

A. Yes, sir.

Q. That is all that amounts to?

A. Yes, that is what that amounts to.

Q. And in the same way in this Exhibit 53, one pound of flour, contains 1.8 parts of nitrite reacting material?

A. To the million.

Q. It would contain 4 milligrams? A. Yes sir.

Q. Reaction as sodium nitrite? A. Yes, sir.

Q. And the little receptacle to the right, that is receptacle No. 3 in each of these exhibits merely gives the one grain of sodium nitrite to represent the amount of what you say is the average dose? A. Yes, sir, 65 milligrams or one grain.

By Mr. Butler:

Q. You speak of nitrite reacting material, I presume you mean computed as nitrogen that you referred to a few minutes ago.

Mr. Elliott: Yes, sir.

By Mr. Elliott:

Q. And in neither of the cases of Exhibit 52 and Exhibit 55, was any of the sodium exhibited obtained by you from any flour?

A. Not in this case, no sir; in fact I would not expect to obtain it in that form.

Q. That is all.

Redirect Examination

By Mr. Butler:

Q. Now so that there may be no misunderstanding about it, the volume of gas corresponding, which is in Exhibit 51, corresponding to the kilogram of flour was not intended by you to be the amount of gas required to produce the amount of nitrite or nitrate of sodium on the card showing 9 milligrams of sodium nitrite? A. It was not.

Q. But that was the amount of gas in different dilutions to be sure, which would be required to treat this flour by 25 cubic centimeters to the kilogram? A. Yes, sir.

Q. And the experience that you refer to as justifying the assumption that it would take that much gas to produce the 1.8 reacting material computed as nitrogen is based on certain testimony of Mr. Shepard and Winton and perhaps others?

A. Yes.

Q. Already in the case, and not upon your own?

A. That is true.

Mr. Butler: I think that makes it all clear, doesn't it?

Mr. Elliott: It was clear to me before.

Q. Well, I was not perfectly sure that it was, Mr. Elliott, but the amount of gas itself in Exhibit 51, if used to produce nitrite of sodium, would make very much more?

A. It would make about 90 milligrams instead of nine.

Q. How many milligrams in a grain—65?

A. 65. I would like to make one further statement if I may.

Q. Yes, sir.

A. My reason for choosing sodium nitrites to illustrate the quantity for observation that is to be seen was this, that it gave the smallest quantity of any salt or combination of nitrous acid that I might choose, and my reason for not choosing to show the nitrous acid itself is that it does not exist in the pure state but only when in solution with water, and the exhibition of the solution would, of course, give erroneous ideas of the quantity present, would give an exaggerated notion. This sodium nitrite is the salt which would give the smallest quantity of material when 1.8 parts per million or milligram per

kilogram of nitrous reacting and nitrogen is calculated to the salt. That is my reason for it; in other words, I have
1298 endeavored to give the benefit of the doubt in every case to the assumption that the quantity is small.

C. E. Brewster, called as a witness on the part of libelant, being duly sworn, testified as follows:

Direct Examination.

By Mr. Butler:

Q. Mr. Brewster, where do you live?

A. Rosedale, Kansas.

Q. What is your occupation?

A. Second miller, Southwestern Milling Company.

Q. That is the Rex mill?

A. Rex mill at the present time.

Q. Is that where the flour "Aristos" is made?

A. It is.

Q. Were you out there at the mill at the time that Prof. Hulett and Dr. Boos and Prof. Acree came out and examined the place and had some flour bleached, some "Aristos" flour bleached? A. I was.

Q. And took some gas? A. I was.

Q. That is an Alsop bleacher, is it?

A. It is.

Q. How long have you been familiar with that particular bleacher?

A. Well, I believe about two years.

Q. Are you familiar with the adjustment of it in the way it was used when ordinarily employed for bleaching?

A. Yes, sir, I am.

1299 Q. Is the "Aristos" flour as it is now being made, when I say now, I mean recently, a bleached flour?

A. It is not.

Q. It is not, you don't bleach the Aristos?

A. Not now.

Q. And have not for how long?

A. I guess it would cover a period of three months if I am not mistaken.

Q. Now did you observe Prof. Hulett take the gas that he took in the flask right near the agitator where the Aristos was bleached? A. I did.

By the Court:

Q. At the elbow? A. Yes, sir, I did.

Q. Where he bored a hole in the piece at the elbow, something like that? A. Yes, sir.

A. Yes.

Q. Now how was your machine running at the time as compared with the way that it usually runs when you bleach Aristos flour, the patent flour, high grade flour?

A. It was running as near normal as I could set it.

Q. How many generating machines did you have in use?

A. We have what would be termed a twin unit, as I would call it, two electrifiers and one generator.

Q. Two electrifiers and one generator?

A. Yes, sir.

Q. That generator is a dynamo? A. Dynamo.

Q. Which makes the electricity. Now the electrifiers was that up in one enclosure or were there two?

A. No, the generator and electrifiers were all in the same enclosure in the fire proof room.

Q. Well, I didn't mean in what room they were in, 1300 but what I am trying to get at is the gas machine, they call it an electrifier?

A. They are separate from the generator.

Q. They are separate from the generator. Now was that gas machine in one box or was there two boxes?

A. Well, each electrifier is by itself.

Q. And the voltage did you know at the time?

A. The machine is one with 500 volts, 15 amperes and 7 1/2 kilo watts, that is the rating.

Q. Do you know what was on at that particular time?

A. 4 1/2 amperes.

Q. Now at the time of the bleaching of this particular flour Aristos that was bleached for the purpose of observation in this case, by the gentlemen, who went out, how many agitators were taking gas at that time?

A. At that time all four agitators were taking gas.

Q. Now one pipe leads from the gas generator?

A. From each electrifier a pipe leads joined to the main lead pipe to the retaining tank or equalizing tank.

Q. Yes.

A. From there it is piped to the four agitators.

Q. And all four were on it?

A. All four belts were set.

Q. Now at the time do you know how the machine was adjusted at the time that another bottle was taken by Prof. Acree, or did you observe that?

A. Well, I observed the taking a bottle when we had three agitators on only.

Q. When you had three on? A. Three on.

Q. And did you observe when they had less than three on?

A. I observed when we had none on whatever.

Q. So there was one, and there was one specimen taken when there were four on, one specimen when there were three on?

1301 A. Yes, sir.

Q. What three were on?

A. When three were on?

[A]. Three were off, that.

Q. Well, that is what I thought, the fact was, but I misunderstood you? A. Oh no, we had—

Q. Prof. Acree took his when all four agitators were taking gas?

A. They were on then, yes, certainly.

Q. And three were shut off?

A. Three were shut off and one on.

Q. And then Prof. Acree took his specimen?

A. He took his specimen in a large table, I would call it, with all the agitators close.

Q. Well, there were three specimens taken or two?

A. Three with the first specimen when the flour was being bleached.

Q. Yes, that was by Acree?

A. I don't know.

Q. Hulett, the man with the whiskers? A. Yes, sir.

Q. And the next one was when all three were shut off and all of the gas was running through one agitator?

A. The by passes, yes, sir, all of it was by-passed through one agitator with the exception of what went through the tube.

Q. Now that was taken by Acree, was it not, and then they were all shut off?

A. Then they were all shut off.

Q. And there was a third amount of gas taken?

A. From a large bottle, looked to be about a gallon or such a matter.

Q. Now in bleaching flour out there, bleaching—the Aristos is your patent flour?

1302 A. Yes, sir.

Q. And the custom was of bleaching just as it was when Acree took his sample?

A. It was as near as I could set it.

Q. And the bleaching was going on at that time?

A. When they took the sample, yes, sir.

Q. Does this gas have any odor, that is employed for bleaching? A. Yes, sir, it has.

Q. Couldn't it always be smelled about the agitators and the pipes?

A. It can, that is, if there are any of the valves open leading to it, and if you can open the exit spout you can smell it there.

Q. That is where it runs out?

A. Yes, where the flour comes out.

Q. Now you have observed the bleaching which results from the treating of flour by the Alsop process when the machine is adjusted as it was adjusted that day at that time when Hulett took the gas; you have observed it frequently as a matter of practice? A. Oh, certainly.

Q. Does the condition of the weather or moisture or temperature or anything of that sort affect the bleaching so as to require varying amounts of gas under different conditions?

A. It does to a degree, I might say, of half an ampere, something like that.

Q. Now what conditions make more gas necessary?

A. Well, we have a harder variety of wheat, or have our mixture is not tempered as much as at other times, we have to use more gas, and if we have a softer quality of wheat or a mixture of wheat that has been well tempered, we naturally cut back on it a little bit.

Q. Now do the conditions of the weather or anything of that sort effect it?

A. Well, they affect it in this way, my observation has been, of course, not in connection with the bleacher because I don't understand mechanical, that is, the chemical action of
1303 the formation of these gases, but our wheat naturally changes its temperature of its own accord under these same conditions.

Q. So then it is a matter of adjustment to get the right amount? A. Yes, sir.

Q. Depending upon all the milling conditions?

A. Certainly.

Q. That is all.

Cross-Examination

By Mr. Elliott:

Q. How long has that Alsop bleacher been in that mill, do you know?

A. I think it will be two years this fall since they put it in the Rex plant.

Q. What change, if any, was made in that bleaching apparatus since the time it was installed and the time that these gentlemen came over there and got specimens of that gas?

A. None that I know of.

Q. None that you know of.

A. No, sir—you mean in the outline of the machinery, etc. and so forth?

Q. Yes, any part of it?

A. No part of it, installed just as we put it in.

Q. When did you stop bleaching flour at that mill?

A. Well, we were not running the plant, this plant, when we stopped bleaching flour the last time, they were running the A mill.

Q. What is the "A" mill?

A. The "A" mill, of the Southwestern Milling Company which is at 18th and Kansas Avenue.

Q. Has that a bleaching plant? A. Yes, sir.

Q. Is that bleaching flour now?

A. Not now, no sir.

1304 Q. When did it stop?

A. About three months ago, as near as I can remember.

Q. Well, I want to get the definite date, is that the nearest you can give it?

A. I can furnish the date.

Q. About three months ago? A. Yes, sir.

Q. Is that a different mill from this Rex mill?

A. Yes, sir.

Q. When did you stop bleaching in the Rex mill?

A. I believe it is in November when we shut down.

Q. Last November? A. Yes, sir.

Q. What do you mean by shutting down, the electrical apparatus or the whole mill?

A. The whole plant.

Q. The whole plant? A. Yes.

Q. When did you start it up again?

A. Started up again I presume two months ago.

Q. Two months ago? A. Yes, sir.

Q. You did not start bleaching? A. No, sir.

Q. And you bleached the flour in that Rex mill up to the time you shut down the plant?

A. Last fall.

Q. Last fall? A. Yes, sir.

Q. And since last fall you have not bleached any flour?

A. We have not.

Q. At that Rex mill?

A. We have not bleached our flour at the Rex mill since it started this last time, no, sir.

1305 Q. Then this apparatus had not been used since last fall up to the time these gentlemen came there, is that true?

A. Well, not for commercial purposes, no, sir.

Q. What do you mean by that?

A. Well, for bleaching our brands of flour.

Q. What had it been used for?

A. Well, a part of the machinery had been running, the agitators had been running and the electrifiers had been running with no current connected.

Q. What had they been running for?

A. Well, because we did not care to throw the belts off more than anything else.

Q. You were running these electrifiers but you were not making any use of the gas? A. No use of the gas, no sir.

Q. But you were making it, is that correct?

A. No, no indeed.

Q. Well, I did not want to misunderstand you. Now I ask you had those electrifiers been in use since last fall when you shut down that mill up to the time these gentlemen came there and took specimens of that gas?

A. They have been used, yes, sir.

Q. Now when and where and for what purpose?

A. For export flour.

Q. You had been bleaching export flour?

A. We had, yes, sir.

Q. Up to the time these gentlemen came there?

A. Not up to that time, but during this period since we started we have bleached some flour for export.

Q. From time to time then during this period you have bleached flour in there for export?

A. Two or three occasions that I know of.

1306 By the Court:

Q. You mean for export to Europe?

A. Yes, sir, or Interstate.

Q. What do you mean, Europe or America?

A. Yes, sir, that is what it is termed.

Q. International. You just used the word "Interstate" we lawyers understand that to mean a different thing.

By Mr. Elliott:

Q. Do you mean by export that you have bleached flour to send abroad or into other states?

A. I presume that is where it went. I had nothing to do with the shipping of it. It was simply bleached for export.

Q. How do you know it was bleached for export?

A. That is our instructions, bleach for export.

Q. And it wouldn't make any difference where it went?

A. Not to me, no, sir.

Q. All you know, you bleached it, you don't know whether it was exported or not?

A. I do not further than the orders were to bleach for export.

Q. But you bleached it and don't know whether it was exported or not? A. I could not swear to it, no, sir.

Q. Now have you bleached any flour for domestic trade within that time? A. Not to my knowledge, no, sir.

Q. Well, would you have knowledge if you had done it?

A. Well, I presume that I—no, I would not, not remember, because I did not pay any attention to these orders, only that we got orders to bleach for a special occasion.

Q. I am not speaking about orders; I am asking if at that Rex mill since last November, up to the present time, you have bleached any flour for domestic use?

A. Well, do you mean—what do you mean?

Q. Well home use, I mean home use in the State of 1307 Kansas or in Rosedale?

A. Not to my knowledge, no sir.

Q. Now I will ask you again would you know if that had been done, if it had been bleached for selling in the State of Kansas or in Rosedale?

Mr. Butler: I don't think that is cross-examination of anything brought out in the direct.

The Court: Go on, get through with it.

A. Well, the only way I could find out would be to see the shipping directions.

Q. I just mean as you saw or do you know?

A. No, I did not, no sir.

Q. Well, all right. Now I understood you to say the difference in temperature and moisture and so forth, will affect the bleaching of flour within half an ampere, is that right?

A. Well, as near as I can judge, I measured very accurately, you understand what I mean, we have a standard to go by to run our patent and our clear flour.

Q. What is your standard patent flour, this Aristos?

Counsel for libelant objects to the question as irrelevant, immaterial and not cross-examination.

The Court: I don't see that that is cross-examination, how can that be.

Mr. Elliott: I want to find out if the conditions when these gentlemen got this gas were the same as when he was bleaching.

The Court: I would rather have the witness testify than make suggestion although you gentlemen make very good ones. Go on, lets get through.

A. What was the last question?

Q. I understood you to say you had a standard for using this machine for bleaching. Now what is it?

1308 A. We have a standard of flour to go by.

Q. But you were not speaking of the machine?

A. No, sir.

Q. Then let me ask you this, did you mean this, that according as temperature and moisture varies in the air you may

adjust your arometer half an ampere one way or the other, that is what you meant was it?

A. That is what I mean, certainly.

Q. Now you are second miller at that Rex mill, are you?

A. Yes, sir.

Q. Who is the first miller? A. Mr. John T. Schramm.

Q. How do you spell his name? A. S-c-h-r-a-m-m.

Q. Do you know where Mr. Schramm is?

A. At the present time?

Q. Yes, sir.

A. Well, I think he has gone to lunch, if he has not been delayed, for some minutes.

Q. He is in Kansas City?

A. Yes, sir, Kansas City, Kansas.

At this point a recess was taken until 2 o'clock p. m.

1309

Friday p. m., June 17, 1910.

Pursuant to adjournment, Court met at 2 o'clock p. m., Friday, June 17, 1910, and proceeded with the trial of said cause further as follows:

C. E. Brewster resumed the witness stand.

The Court: Proceed, Mr. Elliott.

Mr. Elliott: I have no further questions.

Mr. Butler: That will be all, Mr. Brewster.

Witness Excused.

A. L. Winton, recalled, was examined by Mr. Butler, and testified further as follows:

Q. Since Mr. Winslow brought the flour which is in the sack marked Exhibit 13, from Castle, in this state, to this city, have you determined the amount of nitrite reacting material that it contains? A. I have.

Q. How much does it contain?

A. Calculated as nitrogen, 1.6 parts per million.

Q. Did Miss Wessling make some bread out of that flour?

A. She did.

Q. Did you test any of that bread, to ascertain how much nitrite reacting material it contained, if computed on the basis of sodium nitrite? A. I did.

Q. How many loaves did you test?

1310 A. I tested all the loaves that were baked; two baked by the domestic method, and two by the Koellner method.

Q. How much did you find in each loaf baked by the domestic method?

A. In one loaf, I found .82 of a milogram, calculated as sodium nitrite, in another, .92 of a milogram.

Q. How much did you find in each loaf, baked by the Koellner method?

A. In one loaf, 1.16 milograms, and in the other, 1.43 milograms.

Q. Did Miss Wessling make some biscuits out of this same flour, exhibit 13? A. She did.

Q. Did you compute the amount of nitrite reacting material found in that? A. I did.

Q. To the basis of nitrite of sodium? A. I did.

Q. How much would be contained in a pound of the biscuits?

A. 2.57 milograms, calculated as sodium nitrite.

Q. About what was the weight of each loaf of bread?

A. A little over a pound.

Mr. Butler: That is all.

Cross Examination

By Mr. Elliott:

Q. Doctor, my attention was called off, when you first answered. What flour were you dealing with, here?

A. Exhibit 13.

Q. That is some of the seized flour, is it?

A. Some of the seized flour that was obtained by Mr. Winslow since the trial commenced.

Mr. Butler: One of the two sacks, Mr. Elliott, Mr. Winslow brought up since the trial commenced, from Mr. Terry, 1311 down at Greencastle.

By Mr. Elliott:

Q. And you found 1.6 parts per million, calculated as—

A. Nitrous nitrogen, in the flour.

Q. And then, as I understand it, two loaves were made from that, by one method? A. And two by another method.

Q. The domestic method?

A. Two by the domestic method, and two by the Koellner method.

Q. And the two you made by the domestic method, you found 82 and 92 milograms, respectively, calculated as sodium nitrite?

A. .82 and .92, calculated a sodium nitrite, per loaf.

Q. Then you made two bakings, of two loaves, by the Koellner method? Is that right? A. Yes.

Q. And you found 1.16 milograms, calculated as sodium nitrite and 1.43 milograms, calculated as sodium nitrite, respectively, in these two? A. Yes.

Q. And it is obvious, is it not, that you found more of the nitrite reacting material by the Koellner method, remaining in the bread, than you did by the domestic method?

A. It is.

Q. Now, the 2.57. What did that refer to?

A. That was the amount per pound of biscuit.

Q. Per pound of biscuit?

A. 2.57 milograms sodium nitrite, per pound of biscuit.

Q. You mean biscuits were baked, and then a pound of those biscuits, or a pound of the dough, before it was made into biscuits? A. Pound of the finished biscuit.

Q. How were those biscuits made?

A. They were made with baking powder.

1312 Q. Do you know what baking powder?

A. Royal baking powder.

Q. Were they made as separate biscuits, or in one loaf, or one— A. (Interrupting) Separate biscuits.

Q. Well, I just thought this, that perhaps you made the biscuits together, and then took it out and made separate biscuits?

A. I couldn't say whether they ran together—or not.

Q. I didn't mean that. I just wanted to know what you had done.

Mr. Elliott: I think that is all.

Witness Excused.

Mr. Butler: I am not certain that all of the exhibits which have been used in connection with the testimony of witnesses have been formally offered in evidence. I think I do recall that the charts prepared by Doctor Mann were not offered, and I now want to offer the exhibits which have been used in connection with the testimony of the witnesses.

The Court: All which have been identified, and to which allusion has been made?

Mr. Butler: Yes, your Honor.

The Court: Very well. They will be admitted.

Mr. Butler: Doctor Boos has called my attention to the fact that the blood which he produced here will putrify if left here, and become offensive—at least offensive to us, unless something in the nature of a preservative be put into it.

The Court: Which is that?

Mr. Butler: That ox blood which was produced yesterday. It has, already, apparently changed in appearance. It
1313 was introduced to illustrate the effect of nitrites.

The Court: I suppose it will decay at once, unless some preservative is put in it.

Mr. Helm: Do you want to preserve it, Mr. Butler?

Mr. Butler: I don't care for it, at all. It may be poured out, as far as I am concerned.

Mr. Elliott: I don't want it.

Mr. Butler: Then we will ask the janitor to pour it out.

The Court: What exhibits are these?

Mr. Butler: Those are two bottles.

The Court: The contents of two bottles, marked exhibits 48 and 49, are, by consent of parties on both sides, thrown out, and not further carried in the case, which is done on account of the fact that blood will decay, without some preservative be added.

Mr. Butler: I think probably many other of these substances like the biscuits, have already undergone and will probably continue to undergo changes, but not become offensive, I trust. I think that is our case, your Honor.

The Court: Government rests. Defendant calls its first witness.

Mr. Scarritt: If your Honor please, on account of the illness of Mr. Smith, who was the leading counsel in the case and had charge of the manner in which the witnesses were to be put on the stand, we are without his help or support, and even without his notes, now, and it turns out that two witnesses we want to put on first, will not be here until Monday morning, and we have thought that, if we could have some time for consultation and arrangement of our witnesses, we could probably save time. If it is insisted that we go ahead, now, it would disarrange our program, to some extent.
1314 I think possibly we could conserve time by adjourning, for the day, at least, and possibly until Monday, if it suits the other side. In the meantime, we would like to ask, if your Honor please,—and this would save a good deal of testimony,—that the jury be allowed to go, in charge of one of the bailiffs, to visit one of these local Alsop machines, so that it would save the trouble of putting on witnesses to describe that machinery. If we could arrange with the Government to have them go, and have the bailiff to go with them, and let

them visit any one or more of these local machines, I think they could get a better idea, and a better notion of how it works, and what it is, than by any description that we can give them. In the meantime, we could be arranging our own matters, and be ready to go ahead by tomorrow morning, or Monday morning, as would suit the convenience of the Court and the gentlemen on the other side. I would like to say, if your Honor please, right in this connection, that we have had three weeks of pretty strenuous work, especially on the part of the Government's attorneys, and especially Mr. Butler, who has practically stood on the floor, here for three weeks, working hard, and I doubt not that a little rest would put him, probably, in a good humor, so we could get along faster, and I am sure that, on account of the absence of Mr. Smith, that we could arrange so that we could conserve time, and get along faster, probably eliminate a good deal of the testimony by going over the testimony that has already been introduced, so as to not repeat too much, and our side of the case, therefore, asks your Honor to give us a little time, and, in the meantime, to let the jury go and visit one of these Alsop processes.

The Court: Well, now, one thing at a time. In so far as the jury going to see these Alsop processes, regardless
1315 of what counsel on the other side may say, I could not consent that they would go and see this mechanism, or apparatus, in the light of your statement, that they could go there, and investigate it, and look it over, and thereby shorten the evidence, for the reason that you cannot substitute evidence in that way, and, in the event of this case being carried by either side or both sides to an appellate tribunal, it would be utterly and absolutely impossible to carry such information forward. I will not consent to that. That is to say, I cannot consent that the jury may go there and look it over, and that act as a substitute for evidence here in open Court.

MR. SCARRITT: Well, we can produce the evidence in open court, also.

The Court: Well, you have said, in order that you might dispense with some witnesses.

MR. SCARRITT: No, I also said in order that they might see the machine working, so they would know what we were talking about.

The Court: In the second place, if the jury would go and look at it, unless they have got better eye-sight than I have, they would not think it was worth the admission fee, after going. There is nothing to see, except you lift the cover and look

into a glass, and you see a little electrical storm in there, and then you see the two-inch pipe, or some other size, over in another part of the building, and there you see an agitator. From the outside you can't see it, at all—a great big, wooden drum,—and you see the flour pouring out of the other end, bleached. Now, is there anything else to see? If there is, I have sat here for three weeks for nothing, and I have gone to one of these mills for nothing. Now, what did I overlook?

Mr. Scarritt: You overlooked the smell.

The Court: No, I don't see the smell. Now, what did I overlook.

Mr. Scarritt: You asked what you overlooked, and I think you overlooked the smell.

The Court: Well, what did I overlook?

Mr. Scarritt: Of course, I think your Honor is probably describing the machine you saw, and I think it is a pretty good description, so far as it goes, but there is testimony here about the pungent smells about these mills, and about the color of the gas, and about the stain of the gas, all of which the jury can verify. If that is true they could verify it.

The Court: Well, we will see about that.

Mr. Scarritt: They could verify it.

The Court: And use it as evidence?

Mr. Scarritt: They could use it.

The Court: And say whether somebody testified correctly?

Mr. Scarritt: I recognize, your Honor, it is in the discretion of the court to permit that, but I also know it is often done—very often done, where juries are allowed to go to the scene of the accident, or a building, or machinery, where it is in issue, to determine for themselves which side is telling the truth.

The Court: Oh, no. I never heard of that in my life. I never have; you may have; but I never have.

Mr. Scarritt: Well, your Honor, it is a very common practice in our courts.

The Court: On the contrary, the rule in all jurisdictions with which I have any familiarity, is, for the Court to tell the

1317 jury in most specific terms that any fact they witness cannot be regarded as evidence.

Mr. Scarritt: Yes, unless it is under the authority of the Court.

The Court: No, even then. If I let this jury go there, I will tell them in the most specific terms that no fact gained, nothing saw, nothing heard, can, under any circumstances, be regarded or used in the slightest degree as evidence. I will be compelled to tell the jury that. Of course, I know it is exceedingly difficult for a jury to observe such an admonition from the Court. It is hard to keep from that which we did know, that which we hear testified to. It is very difficult.

Mr. Scarritt: I would like to state this, if your Honor please, to show why we make this offer at this time. Your Honor will understand, we assumed, at the time we started out in this case, that there would be experiments made here, and that the jury would be permitted to go and visit one of these machines, and therefore we stated to the jury that we would ask that, and we now ask it.

The Court: Well, we will see about that. I don't want to be put in the position of trying to suppress some fact in this trial, but, under no circumstances, will I accede to your request, that what they may see or hear may be used as evidence. I will never consent to that, either by agreement of parties, or otherwise. The only purpose for which a jury ever goes to visit the premises, is that they may make perhaps the better application of that which is in evidence, and not for the purpose of gaining some fact. Otherwise, you would turn a trial into a town meeting, and you would lose control over your record, and there is no possible way for review by an appellate tribunal.

That is the way that I understand it.

1318 Thereupon the Court ordered a postponement of the further hearing of said cause, until Monday a. m., June 20, 1910.

Morning Session.

Kansas City, Missouri, Monday, June 20, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

Testimony on the part of Claimant.

Claimant, to sustain the issues upon its part, offered and introduced evidence as follows, to-wit:

A. C. Lefang, recalled as a witness on the part of claimant, testified as follows:

Direct Examination

By Judge Scarritt:

Q. I believe you have already testified that you are the manager of the Lexington Mill? A. I have.

Q. By which the flour seized in this case was produced?

A. Yes, sir.

Q. And this flour which was seized in this case as I understand you sold to Mr. Terry? A. Yes, sir.

1319 Q. And did you sell it to him with a guaranty?

A. We did.

Mr. Butler: Wait a moment. I think that is immaterial and irrelevant.

The Court: That has all been gone over, and they made the substitution and they took the flour and thereby became reinvested with the title.

Judge Scarritt: He testified that he got the flour.

The Court: Yes, and the title was reinvested in the defendant.

Judge Scarritt: We can get along faster after we get through these preliminary matters.

The Court: Go on.

By Judge Scarritt:

Q. Now, what was this flour made out of, what kind of wheat?

A. Well, Nebraska No. 2 hard winter wheat.

Q. I believe it has been testified here that that was the best wheat in Nebraska?

A. Yes.

Q. Highest grade of wheat?

Counsel for libelant objected to the question as leading and suggestive.

The Court: It is very leading, but go on.

Judge Scarritt: I would like for you to pass on the question. It has already been testified here. The gentlemen on the other side not only led this witness but every witness he had right straight through every examination he had, and these are simply preliminary matters.

Q. Now, just state to the jury—I believe it has been testified this is fifty-nine pounds wheat to the bushel?

A. Yes.

Q. Now, what do you mean by fifty-nine pounds wheat, a bushel?

A. Why, fifty-nine pound wheat is our best No. 2 hard
1320 wheat raised in Nebraska and in weight that
weights 59 pounds or better, grades No. 2 in all
the terminal markets in this country.

Q. Now, when does it weight 59 pounds?

A. Well, when it is sound, bright and has not been damaged.

Q. At the mill? A. When we take it.

Q. What is the weight of it after you get it ready for milling?

A. When we buy it on the scales it will average 59 pounds or better; we buy lots of wheat that weighs 60 and 61 pounds.

By the Court:

Q. It averages 59?

A. Well, that is the minimum.

By the Court:

Q. Well, what do you mean by the minimum; you said average, which is it?

A. Well, this is the minimum weight; it will average, I think more than 59 pounds.

By Mr. Scarritt:

Q. Does it weigh that when the farmer brings it to you or when you get it ready to put in the mill?

A. That is when the farmer brings it to us.

Q. What does it weigh when you get ready to put in it the mill?

A. After we clean it and scour it and clean out the screenings it will weigh 61 pounds.

Q. So when you say 59 pounds you mean 59 pounds at the time the farmer brought it to you and you bought from him?

A. Yes, with the dirt and chaff all in.

Q. Now, just explain to the jury the process or processes through which this wheat went when it was developed into this flour that was seized? A. I have some samples.

Q. Have you got the samples here with you?

A. Yes, sir.

Q. Well, let's see them and get through with them as quick as we can. Have you got the sample of the wheat as you bought it from the farmer?

1321 A. Yes, sir.

Q. Let me have that first. Now, this bottle which I hold in my hand and which is full of wheat, marked Claimant's Exhibit No. 211, as I understand, is this wheat out of which this flour was made, that is the same kind of wheat?

A. The same kind of wheat.

Counsel for libelant objected to the question as leading and suggestive.

The Court: It is leading.

Judge Scarritt: Yes, sir, very leading. Here is the evidence right here. All we want to do is to identify. If he is going to make these objections it will take three weeks to get through with this case, and we did not make but two of this kind of objection, just to put it in the record.

The Court: You can get at that in a half a minute. Is that the same identical wheat as this flour which was sold to Terry was made from or not, or is it a like wheat?

A. Why, it is a like wheat, yes a like wheat.

By Judge Scarritt:

Q. A like wheat?

A. Yes, it is not the identical wheat, it is a like wheat.

Q. Of course it is not the identical wheat, why, anybody would know that had any sense.

The Court: No, it may not have been ground entirely at one time, I don't know.

By Judge Scarritt:

Q. Now, that is the wheat as you brought it from the farmer? A. Yes, sir.

Judge Scarritt: I would like to show that to the jury.

(Exhibit 211 was handed to the jury for inspection.)

Q. Now, let me see the next grade—when you took the chaff out, was it?

A. We were just taking out the chaff stuff and sticks 1322 and a little of the chaff then.

Q. Where is the chaff, have you got that?

A. I have not got it; that is in very coarse stuff, I did not bring that with me, and I got the other chaff, however.

Q. Well, what is the first thing you took out, that is, that amounts to anything?

A. Well, we took that out, the fan.

Q. Took that out of the wheat?

A. Yes, and that goes through the sieves and also drawn out by the fans.

Q. Now, what do you call this chaff?

A. That is chaff and dust.

Q. Chaff and dust that you took out of the wheat that you produce here in Exhibit No. 211?

A. Yes, sir.

(The sample just identified by the witness was marked "Claimant's Exhibit 212".)

Q. You do that by air, do you? A. By air, yes, sir.

Q. By applying the air through the wheat?

A. Yes, sir, it is drawn through.

Q. Drawn through the wheat. Now, is this,—the bottle that I hold in my hand—the next thing that you took out?

A. Yes, sir, took the screening out.

Q. What do you call that?

A. Screenings, wheat screenings.

(The sample identified by the witness was marked "Claimant's Exhibit 213".)

Q. Now, this chaff and these screenings are thrown away, are they not? A. Well, yes.

Q. As far as the flour is concerned?

1323 A. So far as the flour is concerned they are sold for feed, that is, the screenings are.

Q. What is the next thing you took out?

A. Well, that is the wheat after the screenings are taken out.

Q. What is this?

A. That is after it has been through the milling separator.

Q. Before this or after?

A. Yes, that is the wheat that is left.

(The sample identified by the witness was marked "Claimant's Exhibit 214".)

Q. Now, Exhibit 214 is the result after you have taken the part of the chaff out of the wheat and from the 213?

A. No, and taken 213 out too.

Q. And taken what? A. Taken those two out.

Q. 213? A. Taken this out, those two out.

Q. And that leaves this? A. Yes, sir.

Q. And you took this out—those other two out, and that leaves this? A. Yes, sir.

Q. You are reducing it? A. To the clean wheat.

Q. Clean wheat? A. Yes, sir.

Q. Now, what is the next one?

A. Then we scour it in the scouring machine and we take that off.

Q. Then 214 is after you have taken out the wheat which is in 213 and left what is in 214, and then you get what is in 215 out of that still, do you? A. Yes, sir.

Q. In order to more thoroughly clean the wheat?

1324 A. Yes, dirt and bran and dirt that is on the outside of the wheat kernel.

Q. Now, does that leave the wheat that you make the flour out of? A. No, sir.

Q. It does not?

A. We wet it down and let it stand in a bin for several hours to temper, and it has a fine bran on the outside that is called, millers term it a Bee Wing bran, it swells up, and we scour it over, another hard scour, and we have this product out of it?

Q. What is this?

A. That is the wheat before it is scoured the second time, that is before it is tempered.

Q. Just before it is tempered?

A. Yes, sir.

Q. Now, this is just before it is tempered?

A. Yes, sir.

Q. Then how do you temper it?

A. We put a little water on the wheat as it runs to the bin and it stands in the bin for several hours and toughens the bran, loosens up some of the loose outside branny particles, we then scour that off, and the wheat is ready for the rolls.

Q. Have you got these scourings?

A. Yes, sir, those are lighter in color than the others.

Q. Then when you temper it and scour it you get this out of it? A. Yes, sir.

(The sample referred to was marked "Claimant's Exhibit 217.")

Q. Now, after going through all of these processes have you got the wheat ready for the mill? A. I have.

Q. Now, Exhibit 218 contains the wheat out of which the flour is ground? A. Yes, sir.

1325 Q. That is after going through all these processes of cleaning and tempering? A. Yes, sir.

Q. And preparing for the mill? A. Yes, sir.

Q. And originally it was No. 2 hard Nebraska wheat?

A. Yes, sir.

Q. Now, after you have got all of this out of it and have gone through all of these processes of cleaning and reducing the wheat to the quality which we finally get it what would it weigh then? A. Why, it would weigh 61 or 62 pounds.

Q. To a bushel? A. Yes.

Q. Now, have you got the result of the grinding of the wheat into flour?

A. I have. Which do you want, the flour first, or bran?

Q. The flour,—no, let's take out of it everything; what do you get out of it first?

A. Well, it comes out at different times, bran is the coarsest feed taken out.

Q. Exhibit 219 represents the bran that comes out of this wheat in the process of grinding the wheat into flour?

A. It does.

Q. Now, what else comes out? A. Then we get the shorts.

Q. I notice that we have got two exhibits marked 214, the one I hold in my right hand was taken out of the one I hold in my left hand? A. Yes.

Judge Scarritt: Call the one I hold in my left hand 214, and mark this 214½; no, instead, make that 215. Now, the 220 is the additional product that you get out of the wheat in making it into flour? A. Yes, sir.

1326 Q. Now, after removing the bran and the shorts shown by Exhibits 219 and 220 what do you get?

A. We have a low grade flour then.

Q. Have a low grade flour? A. Yes, sir.

Q. How many grades do you make?

A. Why, we make a first grade or patent, and clears, and we have never considered low grade flour, that is the stream, we have never counted it as a flour.

Q. As a commercial flour? A. As a commercial flour.

Q. But this is the low grade?

A. That is the low grade that we make here.

Q. What has been called here low grade flour?

A. Yes, sir.

Q. That is Exhibit 221. Now, what other flour do you get?

A. And we get our clear.

Q. Is this before it is bleached?

A. Yes, sir; we never bleach the clear.

Q. This is unbleached clear flour? A. Unbleached clears.

Q. You mean by clear what those gentlemen talk about being flour that you don't put in your patent outside of the bran and the short?

A. Yes, sir, bran, short and low grade.

Q. (Handing witness Exhibit 222.) Now, this is the clear which you do not bleach? A. We do not bleach.

Q. What is next? A. Well, the unbleached patent.

Q. Now, what is 223, the unbleached patent flour?

A. Unbleached patent, yes, sir.

Q. What you call patent? A. Yes, sir.

1327 Q. The unbleached? A. Yes, sir.

Q. Now, have you got the bleached? A. Yes.

Q. The same thing? A. Yes.

Q. This is the flour in Exhibit 223 which I hold in my left hand before it passes through the agitator? A. Yes, sir.

Q. And have been bleached by this process, the Alsop process? A. Yes.

Q. And the flour which I hold in my right hand, marked 224, is the same flour bleached, is it? A. Yes, sir.

Q. There is the bleached and unbleached flour. Now, is the flour that was seized in this case produced by the same methods and the same processes exactly as you have described here?

A. Yes.

Q. Now, as I understand, this flour was bleached by the Alsop process? A. Yes, sir.

Q. Just describe that process. A. Describe it?

Q. Yes.

A. Why the electric current is led to the electrifier where the making and breaking of the arc changes the air in some way, and that air is conducted then to the tank by pipes, a storage or receiver tank, and from there it is piped to the agitator where the flour and air are mingled by the rotation of the wings—arms that are rotated inside of the drum.

Q. How far is what you call the generator or the electrifier from the agitator where this air comes in contact with the flour? A. Well, the pipe is about thirty feet long.

Q. That is, there is a pipe about thirty feet long?

A. Yes, from the electrifier to the agitator.

Q. Electrifier to the agitator? A. Yes, sir.

1328 Q. Nothing touches the flour until it gets to the agitator, does it? A. Nothing touches the flour.

Q. In the way of this machinery? A. No, no.

Q. It is only when the flour is going through the agitator that this process is applied to it at all? A. Yes, sir.

Q. How big is that agitator?

A. Why, it is about, oh, six or seven feet long and about twenty-four or thirty inches in diameter.

Q. Does it lie horizontally or perpendicularly?

A. It is horizontal.

Q. And the flour sifts into it and these wheels drive it out the other end? A. Yes.

Q. The air from this pipe which is connected with the electrifier thirty feet off comes through that agitator six or seven feet long while the flour is going through the same agitator?

A. Yes, sir.

Q. And the flour is mixed up like snow by these wheels?

A. Yes, sir.

Q. Now, is there anything put in the pipe or the agitator or anywhere connected with the machinery except the air?

A. There isn't anything else.

Q. Nothing else whatever goes through that agitator, is produced by the air passing through the electricity?

A. Yes, sir.

Q. Now, tell the jury the amount of this electricity, how far are these electrodes that they are talking about apart, how far do they come apart when they are working back and forth?

A. Why, they come apart about an inch.

Q. About an inch?

A. Yes, they come together and make the break in this manner.

Q. You mean they go about an inch?

1329 A. No, they touch, they touch and the current—

Q. Now, when they touch they are right together?

A. When they touch they are right together.

Q. How far do they separate before they come back?

A. They separate about an inch, I think.

Q. They separate about an inch, then this great flaming arc is just about an inch long? A. Yes, sir.

Q. That is all, isn't it? A. Yes.

Q. And what is the size of it? A. Those electrodes?

Q. No, no, not the electrodes—well, tell us about the electrodes.

A. The electrodes, that is the two copper points that touch, that makes the electric connection, produce the flow of current in the arc.

Q. What is the size of those with reference to your finger?

A. Oh—

Q. The size of your thumb?

A. Yes, a little larger than your thumb.

Q. A little larger than your thumb?

A. Yes, not very much larger.

Q. Then those electrodes—

A. When they touch, why, then there is an arc and a flash from them.

Q. When they are pulled apart?

A. When they are pulled apart they are.

Q. What you call the arc is the flash of electricity?

A. Yes, sir.

Q. An inch long between the ends of the electrodes when they are the widest apart? A. Yes, sir.

Q. Is that right? A. Yes, sir.

Q. In other words, there is only about an inch between when they are the widest apart, that is your best judgment? A. Yes, I think that is.

1330 Q. Now, then, how big is this flame that they talk about?

A. Well, the flame, there is an arc in the center and there is a little flash or roar around the outside that just works, pulls apart.

Q. That is, there is a spark of light?

A. There is a spark of lightning in the center, there is the arc in the center and the flash on the sides.

Q. There is a spark of light, how much is that just like a thread. A. Yes, a heavy thread.

Q. Just like a heavy thread, any bigger than that?

A. Well, I don't know.

Q. You have seen it?

A. Yes, it has an appearance larger than a string of thread.

Q. I am talking about this light in the center there.

A. Yes, you are talking about the arc itself only.

Q. How big is it?

A. Oh, it is one-thirty-second of an inch, something like that.

Q. One-thirty-second of an inch? A. Yes, sir.

Q. In diameter or across it or whatever it is? A. Yes.

Q. Now, around that there is a little blue air; you say?

A. Yes, sir.

Q. How big is that? A. An inch in diameter.

Q. An inch in diameter?

A. That is the outside, I think it is a kind of a daze flare from the contact.

Q. Therefore this flaming arc, this great thing that they call the electrical flaming arcs in there, is about an inch long and about an inch thick when you take in all the air

1331 that shows around it that is blue, is that right?

A. I think so, yes, sir.

Q. And that is thirty feet away from your agitator?

A. Yes, sir.

Q. And the air that passes over or through or under or around this flaming arc, this little inch flaming arc, goes into this pipe and is carried thirty feet to this agitator? A. Yes.

Q. Now, does it go through that agitator like a whirlwind or does it go smoothly or gently?

A. Oh, it is just a puff, you know, as the pump works, a very light pump.

Q. Have you ever tried your hand in it? A. Yes.

Q. Well, does it blow your hand out of the agitator, or any thing of that kind? A. No.

Q. Is it very strong? A. No, it is very light.

Q. Very light? A. Oh, very light pressure.

Q. Just like a summer zephyr going through there?

A. Yes.

Q. No pressure in it at all? A. No.

Q. Now, then, how long have you been in the milling business? A. Fourteen years.

Q. During that time you have had occasion to examine wheat and flour and baked bread and performed all the ordinary duties and functions of a managing and head miller, have you? A. Well, as a managing miller I have, yes.

Q. That is, you have been in the business? A. Yes.

Q. Have you noted during that time the different grades of wheat and the different grades of flour, the qualities of wheat and the qualities of flour and of bread made from flour?

A. I have.

Q. Have you during your milling experience determined for yourself by your experience and your observation and the application of the experience and observation that you have had, determined the strength and quality of flour?

A. I have.

Q. And the bread made from flour? A. Yes, sir.

1332 Q. Now, you can state to the jury whether the flour in question here, made by this process that you have described and bleached by this machinery which you have described, has been thereby in any way reduced in its quality or its strength? A. It has not.

Q. Now, has the flour by reason of this process in any way, in your opinion as a miller, a practical flour man, been damaged? A. No.

Q. What is the effect as to whether inferiority in flour is concealed or made more apparent by this process of bleaching?

Counsel for libelant objected to the question as leading and calling for a conclusion of the witness.

Judge Scarritt: I withdraw the question.

Q. Now, you may tell the jury whether or not the flour is rendered inferior by this process from what it was before, in your opinion as a miller?

Counsel for libelant made the same objection; the court sustained the objection; to which ruling of the court claimant then and there duly excepted.

Q. Could you ascertain by inspection whether a flour was inferior after the process from what it was before?

A. Yes, sir.

Q. Was this flour inferior after the process from what it was before? A. It was not.

Counsel for libelant renewed the same objection.

The Court: Objection is sustained on the ground that the witness has not shown himself to have any knowledge of this chemical change in the air as applied to the wheat.

Q. Well, I am not speaking about the chemical change; I am talking about the inferiority which appears in the flour before or after, how could you tell whether flour was
1333 inferior or not after any process of milling?

A. Why, by its appearance and its baking qualities.

Q. What effect does this process have on the flour with reference to concealing or revealing the defects in the flour?

A. Well, if there is any inferiority there due to branny particles or specks, it discloses them more readily.

Q. That is, it reveals the defects? A. Yes.

Q. Instead of concealing them if there are any there?

A. It does.

Q. Now, in this mill of yours could you smell the gas in this machine or coming from this machine?

A. I have often tried to smell it at the electrifier and could not.

Q. Have you tried to breathe or attempt to breathe it, and smell it? A. Yes, I have.

Q. Could you notice any offensive or pungent odor about it at all?

A. I could not; the only place I have ever noticed any odor is in the flour bin itself, could notice a slight odor in there, never on the packing floor or in the room where the electrifier is located.

Q. Have you examined to see whether there is any color in what they call this gas in the agitator? A. I never.

Q. Or anywhere else?

A. I never examined the gas in the agitator itself, but I have at the electrifier opened up a plug that will let the full amount of the air blow out and I looked at it.

Q. Could you see the gas? A. I could not.

Q. What relation does it bear as to color with the air around it? A. Why, I could not detect any difference.

Q. Now, you say you had pipes running from the agitator or the electrifier to the agitator. How long were those pipes in use, or had they been in use?

A. Why, we have had part of the pipe in use five years and a half, and when we moved there was some of the couplings changed, or rather not the couplings so much as their nipples that were changed, but the other pipe has been in use all that time.

Q. What do you mean by "when we moved"?

A. Well, we had the electrifier first in the engine room, then we moved it to the second floor of the mill to have it closer to the work for convenience,

Q. But your pipes, as I understand, connecting your agitator with your electrifier with your agitator have been in constant use for five and a half years? A. Yes, sir.

Q. Do they show any corroding or eating up with gas, or anything of that kind? A. They show a slight rusting.

Q. A natural rust? A. Yes.

Q. Have you got any of these pipes here? A. I have.

Q. Let's see them.

(Witness produces section of pipe.)

Q. Is that a piece of your pipe that has been in use for five years and a half? A. Yes, sir, it is.

Q. Is that as good or better or worse than the balance of it?

A. Why, I think that is representative.

Q. Just the same? A. Yes.

Q. Where was this in reference to the agitator or the electrifier?

A. That was between the agitator and the reservoir.

Q. Between the agitator and the reservoir?

A. And the storage tank.

Q. That is the electrifier and the receiver or storage tank, and then comes the agitator? A. The agitator, yes, sir.

Q. And this was between the agitator?

A. And the storage tank.

Q. Storage tank.

(The piece of pipe produced by the witness was marked "Claimant's Exhibit 225".)

Q. Has this pipe ever been renewed or cleaned or manipulated in any way at all?

A. Why, we clean those pipes out about once a year, there is some dust that collects in there.

1335 Q. Oh, I mean inside, I mean in taking it out at this time? A. Oh, no.

Q. Just as you took it out at the mill it has been there and you have been using it for five and a half years? A. Oh, yes.

Q. You got any other part of it?

A. I have got a rubber hose that has been in use a year and a half.

Q. You have a rubber hose, did you move a year and a half ago, is that when you moved?

A. Why, we put in another electrifier at that time and we changed the piping and they changed the hose at the same time in order to get it to fit.

Q. What became of the old hose?

A. It was thrown away; it did not fit the piping.

Q. (The piece of hose produced by the witness was marked "Claimant's Exhibit 226".)

Q. I notice this is a cotton hose? A. Rubber lined.

Q. Rubber lined cotton hose, that is a thin lining of rubber there? A. Yes, sir.

Q. It is not as thick as the ordinary rubber—some of it, yes, I guess it is some of it, but that has been in use for a year and a half; where was that located with reference to the—

A. That is right by the electrifier, it runs right out, there is an elbow and it goes right up into the pipes that is put up for electrical purposes, electrical insulation.

Q. This was connected with the electrifier and the pipe that ran to the agitator? A. Yes.

Q. And that has been in use for a year and a half?

A. Yes, sir.

Q. How long had the hose that you had on there previously been in use?

A. Well, there was a hose that we had in the engine room, we had a piece on there about two and a half years, and then we moved the electrifier up into the mill, put it in a room, and there was a piece up there about a year and a half.

1336 Q. Did you ever take any of it out because it was worn out? A. No, we did not.

Q. Or eaten up with gas, or anything of that kind?

A. No.

Q. Now, you say you have been in the business for fourteen years. Do you know whether or not there is a standard for what they call patent flour?

A. I never heard of one; I think that every mill established its own standard, their first grade, they term it patent.

Q. Yes, that is every mill—whatever a miller thinks is his patent flour he brands it patent?

A. He brands it patent, and that is his first grade.

Q. Now, then, Mr. Butler has made a great spectacular display here about "Fancy Patent Lexington Cream"—that is the brand that you put on that particular flour, isn't it?

A. It is.

Q. How long have you had that brand on that flour?

A. Used that brand about twelve years.

Q. The same brand? A. The same brand.

Q. Is there anybody else that you know of that uses that brand?

A. I do not know of anyone else using it.

Q. Is there any standard outside of your own standard for "Fancy Patent Lexington Cream Flour"?

A. I do not know of any.

Q. Don't know of any. Is that fancy patent brand of yours known among the trade? A. It is.

Q. Do they know what they are getting when they get that flour? A. They do.

Counsel for libelant objected to the question as calling for the conclusion of the witness and immaterial and irrelevant.

By the Court:

Q. If I go down to a grocery store in my town and see a bag of flour marked "patent" and buy, some name, I
1337 don't know anything about what mill it comes from, do I know anything about what I am getting or not?

A. Well, you know that you are getting—I suppose from that mill that you would be getting their first grade flour; whether it would give you satisfaction or not would depend entirely upon the method—

Q. And if I don't know what mill it comes from I don't know anything about it, is that it?

A. Yes, that is true.

By Judge Scarritt, resuming:

Q. That is evident. This brand of Fancy Patent that you have that has been seized in this case has been on the market for twelve years, hasn't it?

Counsel for libelant objected to the question as argumentative and leading.

The Court: It is very leading, but he may answer.

A. It has been.

Q. I will ask you if during that time you have used the same grade of flour to make this kind—the same grade of wheat to make this kind of flour?

A. Well, the first two years in Nebraska we had hard spring wheat and that run out in Nebraska, and for the last ten years we have had the hard winter wheat that is grown in Nebraska.

Q. And you made this flour out of that wheat?

A. Yes.

Q. And with the same processes that you have explained here to the jury? A. Yes, sir.

Q. In the same way? A. Yes.

Q. Now, has that flour, to your knowledge, become known over the country among the trade that you sell it to?

A. It has.

Q. And when a dealer orders from you the Fancy Patent Cream Lexington Flour he knows what he is getting?

A. Yes, sir.

Q. When he orders from Mr. Ballard his White Rose why, he may know that he is getting his patent from him?

A. Yes, sir.

Q. But there is no standard for patent flour?

1338 A. There is not.

Q. Now, from your experience as a miller—I will ask you before I leave that, have you ever had any complaint about this flour after you bleached it?

Counsel for the libelant objected to the question as immaterial.

The Court sustained the objection; to which ruling of the court claimant then and there duly excepted.

By Judge Scarritt:

Q. I have forgotten whether it was you or not, but my recollection is that Mr. Butler asked you with reference to the complaint made against this or some other flour; is that correct?

A. No.

Q. In one of his frequent recalls?

A. No.

Q. It was not made?

A. I don't remember anything.

Q. Now, from your knowledge of flour and wheat can you tell the jury whether or not there is any difference in the quality or strength or size of loaf, or in any other way except in color, and not even in color, between flour bleached by the Alsop process and flour bleached, aged flour, or flour bleached by nature?

Counsel for the libelant objected to the question as calling for a conclusion.

The Court: Well, he may answer.

A. Why, flour bleached by the Alsop—

The Court: Oh, answer the question.

A. Why, there is a slight difference, depending upon the time that it has been aging naturally by nature.

Q. Well, I am talking about flour aged by nature.

A. Yes.

Q. To the same extent that flour is bleached by this process? A. It would be the same.

1339 Q. Well, now, does nature age flour to the same extent that this process does, in time?

Mr. Butler: Objected to on the ground that Judge Scarritt's question assumes that this witness has testified that this bleaching process ages flour, and he has not testified to anything of the kind, and I don't think that he will because I don't think his conclusion would be permitted on that score.

The Court: Well, he may answer.

Q. If it doesn't do anything, why say so, if it does, say so.

A. What is that question?

Q. The question is whether there is any difference between flour that is bleached by the Alsop process and the same flour that is bleached to the same extent by nature?

A. There is no difference.

Q. It is the same in quality and strength?

A. Yes, sir.

The Court: Color.

Q. And color?

A. Yes, if it ages the same length of time it will have the same color.

By the Court:

Q. The same length of time?

A. That is, I mean if you give it time enough to age it will give you the same color.

By Judge Scarritt:

Q. That is, if you give it time enough to age to the same extent that the bleaching process does?

A. Yes, sir.

Q. It will have the same color and the same quality?

A. It will.

Q. Now does the bleaching process, from your experience and knowledge as a miller have the effect of aging flour?

A. It does.

Q. Does it have the same effect as aging flour by nature?

A. It does.

Q. Did you ever notice any difference between the quality or the strength or the color of flour that was bleached in this way by the Alsop process and flour that is bleached to the same extent by nature?

A. I have never made any careful examination along those lines, but it would be my opinion that it would be the same.

Q. It would be the same? A. Yes.

Q. Did you ever have any experience in making bread or in testing the flour, that is, bleached flour, in the bread, or examining it, investigating it?

A. No extensive experience, no.

Q. Well, you follow that up as a miller, don't you?

A. Yes

Q. What effect does it have on bread as to quality and strength as compared with the bleached flour by nature?

A. Why, it has the same effect on the quality, that is, it improves the quality of it and improves the color of the bread and it makes the same size loaves.

Q. Makes the same size loaf. Now, then, what effect does the bleaching of this wheat that you have been—flour from this wheat that you have been talking about, have upon the market as to the price of the white flour?

A. Well, when we can bleach our hard winter wheat flours by the Alsop process, and age them, and get the proper color, we can sell upon the markets of the world in competition with the—

Mr. Butler: I move to strike out his answer as not responsive to the question.

The Court: Well, go on; I suppose he is getting to it; anyway go on.

A. In competition with the other white wheat flours.

By the Court:

Q. Now, what do you mean, you mean that you can sell your winter wheat flour or spring wheat flour, is that what you mean? A. No, sir, I do not.

Q. What do you mean?

1341 A. We sell it upon its merits, but if it has a proper color it commands—well, it will go to places where people—

Q. Don't know the difference or what?

A. They know the difference, because it makes a different class of bread.

The Court: All right, go on.

By Judge Scarritt, resuming:

Q. Now, you get right there, let's continue that a little further. What is the effect of an attempt to make bread out of unbleached new flour, spring wheat flour, or any other wheat?

Mr. Butler: I object to that as immaterial and irrelevant.

The Court: Yes, talk about winter wheat flour. However, let's get through, I want to know what you bleach the flour for; get on and tell it.

Judge Scarritt: If your Honor please, we will get around to that and show you all about that.

The Court: What do you bleach the flour for; go on and answer.

Judge Scarritt: Please don't crowd us right at the start; we want to get straightened out.

The Court: Go on.

Q. Why do you bleach the flour?

A. Why, we bleach it to age it, and to improve the color, and people want a white flour, they want white bread, and it enables us to sell the flour quickly, place it upon the market without storage, and to sell the flour at a lower price by

not having to hold it thirty or sixty days in the warehouse; it saves the necessity of storage.

By the Court:

Q. Insurance? A. Yes, sir.

By Judge Scarritt:

Q. And all that sort of thing. In other words, you are not paying for the Alsop process just for fun?

1342 A. No, or any other.

Q. If you didn't believe it rendered it better you would not pay for that. By the way, one question I want to ask you. What was the date that you made this flour that was seized in this case.

A. I think it was March 30 or March 31; it was made at night.

Q. Now, subsequent to that time did you—when, subsequent to that time, did you change your mill, sharpen your rolls? A. We changed our rolls after that.

Q. After that time?

A. Yes, sir, we had them recorruigated.

Q. What do you mean by recorruigated?

A. Regrind them, sent them down to the people that do that work, they put new corrugations on the rolls, that is, kept corrugations in them in a certain way and sharpen them up.

Q. When they are newly corrugated they make a little better flour, don't they?

A. They make a little better flour.

Cross-Examination

By Mr. Butler:

Q. When did you fix up these exhibits that have been offered in evidence in your examination, or did you fix them up, or did you have somebody else do it for you?

A. Why, I got the pipe a week ago, and I got the other examples several weeks ago.

Q. Before or after Mr. Tucker testified in this lawsuit, Mr. Tucker, your miller?

Q. Yes,—well, now, let's see, I think it was after he testified.

Q. After this trial commenced you fixed up these exhibits for the purpose of bringing them down here to show what they do show to the court and jury?

1343 A. Yes, sir.

Q. Do you believe that the bleaching of the flour by this gas improves its nutrition value? A. I do not.

Q. It is stated in this patent which is in evidence in this case that the bleaching increases the water contents. Do you believe that?

A. Why, I never examined it for that purpose.

Q. It states that it increases the proteins from 13 to 26 per cent, disregarding fractions; do you believe that?

A. Why, I have no way of determining it one way or the other.

Q. I know, but you have been using this for five years?

A. Yes.

Q. And do you know whether or not it makes the flour of greater nutritive value; do you believe that it does?

A. No, I do not expect that, it dries the flour slightly.

Q. Then you think that where it says it adds water to it he is mistaken in the patent, do you? A. Yes, sir.

Q. So the statement that it adds water is false; the statement that it makes it more nutritive is false?

Judge Scarritt: I object to that. The patent is not in question here.

Mr. Butler: No, but it is in evidence here.

Judge Scarritt: I know it is, but the hearsay evidence in the patent is not in evidence here.

The Court: He may answer.

Q. So the statement in this patent to the effect that the nutritive value is increased is false, in your judgment, is it not?

A. Well,—

Judge Scarritt: I object to that as not proper cross-examination or expert testimony.

1344 The Court: He may answer.

A. I don't think that it is correct that it increases the proteins; I do not believe you can increase or decrease them, from what I know.

Q. I want you to answer my question. Now, Judge Scarritt helped you very much by leading, but I am not going to; I am going to take your opinion.

A. That is all right.

Q. I want you to answer my question: Do you believe that statement to be true or false that it increases the nutritive value of flour?

A. Well, I answered that before; I don't think that it increases the nutritive value of the flour except that it dries the flour very slightly.

Q. Well, does that increase its nutritive value?

A. Well, yes, I think it would.

Q. You think it does, but you think that the statement that it doubles the protein value of the flour is absolutely a humbug and false, don't you, right on its face?

Counsel for the claimant objected.

Q. Now, don't you, Mr. Leflang?

The Court: I don't think you ought to use that language, but you may answer whether it increases or not.

A. It does not increase it, at least I don't think it increases it.

Q. You find a statement here in this patent to the effect that it makes the flour a dead white as distinguished from the yellowish or creamy white with natural aging, is that true or false? A. It does not make it dead white.

Q. So that statement is false in the patent. Does bleaching your flour enable you to get more money for it?

1345 A. It does not.

Q. Not a cent more? A. No.

Q. What do you bleach it for, then?

A. What do we bleach it for?

Q. How much does it cost you to bleach; I will just change that question: How much does it cost you annually to bleach the flour?

A. Well, let me see—oh, figuring roughly in my head, I would say fifty or sixty dollars a year for area that is consumed and the current that is used.

Q. What about pay for the machine?

A. How much do you pay?

Q. Yes. A. I paid two thousand dollars.

Q. How many horse-power of electricity have you equipped to make this gas with? A. Why—

Q. Not how much you use, but how much is your power, your equipped power, your rated load?

A. I think that we did have; used in place of the regular Alsop generator, a motor; I think that motor is rated seven and a half horsepower.

Q. What is the Alsop dynamo rated at?

A. I think that is rated 5 K. W., I am not sure.

Q. 5 Kilo Watt? A. 5 Kilo Watt.

Q. And each Kilo Watt is one equipped horse-power?

A. Each kilo watt is one equipped horse-power, that is about right.

Q. So to blow this summer zephyr into the flour you have equipped a seven horse power electrical plant, haven't you?

A. Yes, but we do not use this much.

Q. Of course not, but in case you should need it, you have seven horse-power to blow this summer zephyr into the flour; that is all it is for, isn't it? A. Yes.

Q. None of it is used to make something to put in the summer zephyr to put in the flour, is there?

A. I don't suppose so.

Q. Now, is not the electricity used to make gas to put in the flour?

A. Well, it makes the arc, the arc makes—the arc is the discharge in the air?

Q. Yes, and that makes the gas? A. I suppose it does.

Q. And that is the gas that would smell in the flour bin?

A. Yes.

Q. You know that?

A. You smell it in the flour bin, yes, sir.

Q. That is the gas that you smell in the flour then?

A. No, I never smelled it in the flour.

Q. But you smell it in the flour bin?

A. I smell it in the flour bin.

Q. But the only way it could get into the flour bin is to go down through with the flour, isn't it? A. Yes, that is true.

Q. So, then, you know that this gas that you smell in the flour bin is made by the seven horse-power plant and is conducted into the flour and carried by the flour into the flour bin where you smell it, you know that, don't you? A. Yes, sir.

Q. Now, you know that is not air, don't you, pure air; you know that don't you, Leflang?

A. Well, it is not pure air, but it has got something in it.

Q. And you know that anybody that claims it is, is satisfied about it, don't you, because you know it smells in the

1347 flour bin, don't you? A. Yes.

Q. And it smells differently from pure air, doesn't it?

A. Yes.

Q. And it smells like the nitrogen peroxide gas that has been exposed in this courtroom since the trial commenced, doesn't it? A. Yes, sir.

Q. And you would recognize it anywhere on earth, wouldn't you? A. Well, I don't know whether I would or not.

Q. Now, how many horse-power would you have to use bleaching your patent flour to naturally age it in ten seconds or fifteen or twenty, that would be the equivalent of three months' storage how many horse-power to make gas that would be the equivalent of three months' storage under proper conditions?

A. Let's see, I made some tests with the Watt meter to find out a few of these facts, we use—let's see—we use about ten, I think, to get that amount of aging it would take about ten watts a minute.

Q. Yes.

A. That would be six hundred watts an hour; that is about three-fourths of a horse-power.

Q. How much would it take it to age it for two months?

A. Oh, I don't know.

Q. I want the lapse of time against this gas, don't you see? A. Yes.

Q. A little bleaching is equivalent to a little aging?

A. Yes, sir.

Q. Much bleaching is equivalent to much aging is your idea? A. Yes.

Q. And much aging is equivalent to stronger smell in the flour bin, isn't it? A. I suppose so.

Q. Much artificial aging. And too much artificial age is equivalent to sulphur colored flour, that is exposed to it, isn't it? A. I never seen any sulphur colored flour.

1348 Q. Mr. Leffang, do you take no steps to keep your agitator and conveyor free from this yellow flour that does accumulate in them? A. I never seen any accumulate.

Q. You never noticed that, you are not a miller? A. No.

Q. You did not mill this flour? A. No, sir, I did not.

Q. When was the flour that you substituted for this flour milled? A. I think it was the last of April.

Q. The last of April, a month later? A. Yes.

Q. It has not been artificially aged? A. No.

Q. Nor bleached? A. No.

Q. Nor naturally aged? A. It is naturally aging.

Q. Yes, it is natural aging? A. Yes.

Q. But it has not naturally aged when you sent it down to Terry, was it? A. No.

Q. So it was very much inferior to what it would have been had it been naturally aged? A. That is as to color?

Q. Yes. A. Yes, sir.

Q. As to everything, isn't it, don't you know that flour improves if you leave it alone and don't poison it, by natural aging? A. It improves either way.

Q. It improves if you poison it?

A. I don't know that we poisoned it.

1349 Q. But don't you know that flour improves by natural aging? A. Why, yes.

Q. In bread making quality as well as color? A. Yes.

Q. So that this flour that you sent to Terry was not naturally aged, was not artificially aged, and therefore very much inferior to what that same flour would have become had it been naturally aged, was it not?

A. How is that, was very much inferior to what it would have become?

Q. Yes, what that same flour would become by natural aging?

A. Yes, it was improved in color, and in baking qualities.

Q. The gluten would become more elastic?

A. Of course, that applies more in the fall of the year than at this time of the year, because the wheat is getting old and bakes out better.

Q. Now then that that flour that you sent out there of the sort [of sort] which we brought here, is inferior flour, compared with itself after natural aging, isn't it?

A. No, that is inferior only in respect to color.

Q. Doesn't it improve in quality when you naturally age it? A. Yes, both flours improve in quality.

Q. I am only speaking of one flour now. A. Yes.

Q. I am speaking of the flour that you marked "Purity" and sent down to take the place of your patent flour?

A. Yes.

Q. Now that flour when you sent it to Terry was inferior to what the same flour would have been had it been allowed to age for three months or such a matter? A. Yes, that is right.

Q. Greatly inferior, but if you had bleached it with
1350 your machine it would have looked as though it had been naturally aged, wouldn't it? A. Yes.

Q. The appearance would have been the same as though it had been naturally aged, and if in truth and in fact the natural aging does not improve the flour's quality beyond color, then you must say when you answer logically that the bleaching conceals the inferiority of freshness, must you not?

A. No, no.

Q. Why?

A. Not inferiority of freshness, it is inferiority of color.

Q. Well, we will just go over that once more. You say that natural aging improves color and quality?

A. Natural aging improves quality and color, yes, sir.

Q. Color and quality you say. Now then this flour that you sent down to Terry, the substituted flour, was not naturally aged when you sent it, was it? A. It was not.

Q. It was therefore inferior, was it not, to what it would have become if it had been naturally aged? A. It was.

Q. Bleaching of it would have made it look like natural aged flour, wouldn't it?

A. Yes, it would give it a better appearance.

Q. It would make it look, that is an expert like you millers, might be able to slick down the two and tell which was which?

A. Yes.

Q. But the natural wayfaring flour consumer could not, could he?

A. Well, they know when they get it home whether it gave them satisfaction or not.

Mr. Butler: I move to strike that out.

The Court: Yes, sir, that is no answer.

1351 Q. Answer my question; to the ordinary observer they would look the same?

A. They would look—well, if they compared them you mean one to the other?

Q. Yes.

A. No, they would notice the difference.

Q. Well, if they don't compare them?

A. If they don't compare them, they just bought one sack of flour, when they would see no comparison.

Q. Now then if in truth and in fact Mr. Leflang, you are mistaken when you say that the quality of flour is improved by introducing this gas and air into it, then it follows, does it not that the bleaching conceals the inferiority and makes the inferior look like the better flour? A. No.

Q. You think that does not follow?

A. No, you can not bleach an inferiority of flour.

Q. What is that?

A. You could not bleach the inferiority of flour, that is all branny specks.

Q. You cannot bleach fresh flour? A. Yes.

Q. There are no branny specks in this "Purity" are there?

A. Well, there is always some.

Q. Well, I know, but we leave those out. Now I am speaking of fresh flour, and bread making quality? A. Yes.

Q. If you are in error when you say that bleaching by this gas improves bread making qualities, then it follows, does it not, that the bleaching makes the inferior flour look like the better flour?

A. Well, I don't know the way you mean the inferior flour, I don't understand the question.

1352 Q. Well, fresh flour, fresh flour is inferior you told me? A. No, not inferior, only as to color and age.

Q. And bread making qualities? A. Yes.

Q. So that the bleaching of fresh flour makes it look like the aged flour, doesn't it? A. Yes.

Q. And if it does not work precisely the same changes that natural aging does, it is a deception and conceals the true quality of the flour, doesn't it? A. That is true.

Q. So that in order to justify your conclusion, which was put in your mouth by Judge Scarritt, by a leading question, that it was naturally aged, it must be established that the nitrogen peroxide gas is the equivalent of time in the change which works upon the flour, mustn't it?

Judge Scarritt: I object to that as a mere argument, a stump speech to the jury.

The Court: You may answer yes or not.

A. Well, I think that is true.

Q. Now you are not chemist enough to know, are you?

A. Chemist enough to know, no, I am not a chemist.

Q. You don't know about that. Did you know when you began bleaching flour that it added nitrites to the flour?

A. No.

Q. When did you find that out first?

A. I think the first articles I read on that was possibly in 1907, there was several pamphlets published at that time, articles in our different milling journals if it was since then.

Q. You now know and understand that it adds a material to the flour which upon being treated with this Griess-Ilos-vay test gives the pink color that shows in the bread made from this flour? A. Yes, sir.

1353 Q. You know that, don't you? A. Yes.

Q. When did you find that out first?

A. When did I first find that out that this particular test would apply you mean?

Q. Yes?

A. Oh I think I heard just a little about it last fall.

Q. This past autumn? A. Yes, this past autumn, yes.

Q. Did you understand that that was nitrite reacting material or nitrous acid, something of that kind? A. No.

Q. You say there is a flash and a roar attending the making and breaking of the electric current as I caught your answer? A. I said there was a flash.

Q. I thought you said a roar? A. No, not a roar.

Q. Well, I was not sure, but then there was blue area, isn't that what you said?

A. A blue area around the outside of the arc.

Q. You were not present when this flour was milled, were you? A. No, sir.

Q. This patent flour that was seized? A. No.

Q. Were you at home that day or night or were you out of the city?

A. I really couldn't say; I think I was at home.

Q. Now if three-fourths of one horse power will manufacture gas enough to be the equivalent to aging that three months, why do you suppose Mr. Tucker used $3\frac{1}{2}$ horse power and two gas machines into one agitator to bleach this flour; did he want to make it as old as eternity itself?

A. No, if he made it as old as eternity it would be rancid.

Q. Yes, that is what I thought. A. Yes.

1354 Q. Over-treatment makes it rancid? Why do you suppose he used three and a half horse power on this flour?

A. Well, we didn't use three and a half horse power; there was three and a half amperes times 500 or 450, whatever our voltage is, I am not able to state exact on that; it would be less than three and a half to four horse power, three times five is two, will be about two horse power. Then we only use, when we are using two machines, three and a half amperes; we only use 20 watts a minute.

Q. I know what you generally do, you know what you generally do, but you don't know what was going on there that night exactly? A. Well, I know.

Q. Because what he told you he used? A. Yes.

Q. And I suppose he told you the same thing if you asked him?

A. But two machines running on three and a half amperes is the same as one machine running on three and a half amperes.

Q. If one machine was enough why did you use two?

A. Because when he used two machines—

Q. Make it old quicker?

A. No, it lightens the load on the two machines and prevents it from wearing out; the coils, heat as the current goes through them, that is what happened.

Q. So he needed so much gas to bleach this flour that if he had done it with one machine the coils would be heated and worn out the machines?

A. No, practically all the mills use the same amount, that is, three and a half to four amperes.

Q. I don't care what all the mills do, but then as I understand the reason for using the two machines to make the gas was because if you only use one that it would have worn that one out by heating the coils?

A. Well, that is an electrical condition that applies to all machinery that is running electrically, that if you pass a large amount of current through a small wire that it will heat up quickly, and that is the natural breaking down of all electrical machinery—overheat it.

Q. Is natural aging in color in flour a defect?

A. It is considered so by some.

Q. Do you consider it so?

A. I do in our Nebraska wheat.

Q. You consider natural color a defect. What is the natural color of a 50 [—] cent patent compared with a 90 [—] cent patent flour made from the same wheat?

A. Made from the same wheat?

Q. Yes.

A. In the same method, depend upon the milling.

Q. Yes, I know, but suppose you grind to get just the pure middlings 50 per cent, would you get a whiter flour than if you put in 90 per cent?

A. Well, if you get a whiter flour it would be very little difference.

Q. It would be a little whiter, wouldn't it?

A. Oh, not much, I don't believe it would.

Q. No, 100 per cent patent is as white as 50 per cent patent, is it? A. Oh, not the extremes.

Q. What? A. Not to extremes, no.

Q. What do you mean by not to extremes?

A. Well, I mean this, if you take 100 per cent there might be some 100 per cent patents that would not have the color of the 50 per cent patents.

Q. I mean from the same wheat?

A. From the same wheat, yes, from the same wheat too.

Q. 100 per cent as white as a 50 per cent patent?

1356 A. No, it is not exactly as white but the color is very close.

Q. It is not as white then? A. It is very, very close.

Q. Very close? A. Yes.

Q. So then if you bleach the 100 per cent patent a little, just a little, a few breaths of zephyr, it would make it look like the 50 per cent patent, wouldn't it? A. Well.

Q. Under that influence, wouldn't it?

A. It would in color the same appearance, yes.

Q. I mean in color, of course.

A. I don't think it would make the same loaf of bread.

Q. So that the situation is this, if a longer patent is a little more yellow or not quite so white in color, then the shorter patent a few breaths of the modified air will make it look like a shorter patent, won't it?

A. I think it would make it whiter than the shorter patent.

Q. Yes, you can make it whiter than the shorter patent?

A. Yes.

Q. And so if you take the clear free from bran and these impurities that the morality of this machine will not permit it to bleach and bleach it a little and mix it with your patent, then it would all be a little whiter than the natural patent, wouldn't it?

A. Well, if it didn't have any specks in it it would be first class flour, it would be a high grade flour, it would not be called clears.

Q. And it would be a little whiter than the natural patent wouldn't it?

A. Well, it would not be called the clears if it didn't have these inferiorities in specks.

Q. You have told us a miller can call these things what he pleases?

A. Yes, sir; but you are speaking about what we generally term a clear patent that has specks in it.

1357 Q. Now so that if you take a flour made from the yellow berry it will be naturally not quite so white as from the same wheat that is not the yellow berry, is that right?

A. Well, I think they would be about the same color; we have there—we raise in Nebraska hardly no wheat that grades turkey.

Q. I know.

A. No, our natural wheat in Nebraska is No. 2 hard.

Q. Will you answer my question, and it is this: Does the yellow berry wheat make as white flour as the same kind of turkey wheat which is not yellow?

A. Well, do you mean Kansas wheat, Kansas turkey wheat.

Q. I don't care.

A. Well, you take Kansas turkey hard wheat, I believe makes as white a flour or whiter than any other hard wheat flour but the turkey flour, the pure turkey wheat is a very small amount.

Q. I am not speaking as to the amounts now.

A. You want to get the averages?

Q. No, I don't want to get the averages, I want to get a bucketful of yellow berry and the kind Tucker says was in your wheat? A. That is—

Q. And I want to ask you whether that will make—mill into as white flour as the wheat of the same type which is not yellow?

A. The same type will, if you use the same type raised in our State in our locality, I think that our darker wheats and our lighter wheats will make practically the same flour, the same appearance.

Q. So that you hold, then, that the yellow berry makes as white wheat as the Turkey hard of Nebraska, that is, white flour? A. We don't raise any in Nebraska.

Q. I am not asking what you raise in Nebraska; I am asking you if you—

A. No, you are asking if we raise Turkey hard in Kansas.

Q. I am not asking if they are raising Turkey hard in Kansas; I am asking you if the yellow berry that Tucker says was in this flour that we seized,— A. Yes.

1358 Q. Will make a white flour as the rest of the wheat that was in that same flour, that is what I am asking you, no matter what is raised now.

A. Well, I think it will; I never tried them separate because it is the natural condition they had to be mixed.

Q. Yes, all right; so, then, it is your opinion and your statement to this jury that yellow berry makes as white flour as if it does not become yellow?

A. Well, yes, that is true in general cases; now, the yellow berry wheat that is raised in some parts of the state, the

two a hard wheat would make a different color flour from wheat raised in other parts of the state; I have seen it vary a great deal even in the same locality.

Q. Where did you get this wheat that made this flour?

A. Well, it was raised in our county, all of it, as near as I can recollect.

Q. Your scale books show then from whom you got it, how you graded it and what you paid for it?

A. Well, I could not, that particular wheat.

Q. No, but it shows what came in during the time that that wheat came in? A. Yes, yes, it does.

Q. That scale book is in your control, isn't it?

A. It is not just now; no, it is at home.

Q. Well, I mean as the manager of this mill? A. Yes, sir.

Judge Scarritt: Do you want it, Mr. Butler?

Mr. Butler: It would probably show quite as much as these little things in the bottles.

Q. Now, do you say that this Purity flour was the same kind, that you sent to Terry, was the same kind of flour as the flour seized, except one was bleached and the other was not?

1359 A. Well, as near as I know we used about the same kind of wheat, it varies from day to day, there is always a slight fluctuation; I notice that in years in the milling business, the business from day to day, it is changing in appearance.

Q. Is it within your knowledge that the longer the patent the higher the ash content, other things being equal?

A. I never—

Q. You don't know?

A. I made no study of the ash content, never heard of it.

Q. So then you couldn't tell us how it come that the content of the flour shows upon examination a very much higher ash than the flour substituted for it?

A. No, not according to the ash; I know one reason why that may possibly be true, that it does show a difference, because we recorruigated the rolls in between the two shipments.

Q. You think recorruigating the rolls would put more ash in it? A. No, it would put less ash.

Q. You think that the condition of the rolls takes out the ash, do you? A. I think so.

Q. How is that?

A. To some extent it makes a little more flour.

Q. Was that to get ninety per cent too? A. Yes.

Q. How long have you used bags branded just as the bags were in this flour seized?

A. How long have we used the sacks?

Q. Yes.

A. With the one change we have taken out the word, when that sack was originally designed we had "Hard Spring Wheat", and when we changed over to "hard winter wheat" we eliminated the word "spring" we have been using the hard winter wheat.

Q. Does the quality of wheat which your mill handled depend upon seasons and vary from season to season?

1360 A. Yes.

Q. Do you have No. 3 wheat sometimes, some years?

A. We have, some years we have No. 3 wheat, yes.

Q. Some years probably No. 3 wheat, probably 4, sometimes some unfortunate farmer lets his wheat sprout in the shock, or something? A. We don't use that.

Q. You don't buy that?

A. We buy it; we do not use it.

Q. You just keep it? A. Ship it.

Q. And you never in your life used No. 3 wheat to make flour to put into the sacks from the first quality hard wheat?

A. We may have used 57 or 56 pound wheat that was light that was dirty, but when it is cleaned up it would make good wheat, in fact some of the best wheat I have ever seen in Nebraska weighed only 55 or 56 pounds.

Q. So then the first quality might be bought as rejected or No. 4 or No. 3? A. No, not as rejected.

Q. But as No. 3? A. It might be No. 3 wheat.

Q. Might be No. 4? A. No, it could not.

Q. So that it would sell as first quality when even though you paid the farmer for it on a lower basis?

A. Well, that depends upon the—you see wheat that only weighs 56 pounds would not have as many pounds of flour to the bushel, that is the reason why there is a difference in the price of wheat.

Q. If there is a good deal of foreign stuff do you dock them a little for dirt?

A. We do if there is a large percentage of it, yes.

Q. And if 59 pounds is the weight of the wheat though, you take the dirt? A. No, that is the best wheat.

1361 Q. So that you buy that on the basis that you grade it on the best wheat then to the farmer, do you?

A. On the best wheat, yes, to a certain extent, we do.

Q. And then you dock him for the dirt?

A. Not in 59 pound wheat.

Q. And if it is 54 pound wheat or 56 pound wheat after you get it and put it through your process, then it is the first quality of wheat?

A. No, not always, that would not follow.

Q. Isn't it true when you put in the sacks the flour from the No. 3 wheat that it was not first quality wheat?

A. Well, that No. 3 wheat, the only trouble is that it had dirt in it when it came in, that is chaff and straws of wheat or kernels that were slightly shrunken; that would still be good wheat when it is cleaned up.

Q. Well, we will drop that. You say that the patent flour is anything that the miller has a mind to call patent?

A. Yes, that is within certain limits.

Q. Well, depending upon the miller's conscience, or what?

A. No, not upon the conscience; he would have to make a flour, he could not mark a flour patent hardly, that is, in our section of the country, and sell it as patent flour, that is his first grade flour in competition with the other mills if he did not make good flour now, of course.

Q. And patent flour means good flour?

A. Well, yes, that has been my general understanding of it.

Q. And then good flour is what the miller thinks is good flour?

A. Yes, what the customer thinks, because he sends it to the customer with a guarantee, and if it does not give satisfaction, why, he is the loser.

Q. So that you say in the flour market of the country patent has no meaning?

A. It has a meaning, and still it has no definite meaning.

1362 Q. No, it has no definite meaning?

A. Has no definite meaning.

Q. But it does mean that there was a clear flour taken out, doesn't it? A. Yes, sir.

Q. And it does mean that it is from middlings, don't it?

A. No, sir.

Q. Patent flour means that it includes the middlings, doesn't it?

A. It means that it includes the middlings, but it may include the other flour too.

Q. It may include something else too, you think?

A. Yes, sir.

Q. And it also means that there has been taken out some flour other than middlings near the outer coats of the wheat, that is, an eatable flour, quality of flour?

A. Quality of flour, but inferior on account of the specks that are in it, due to improper milling.

Q. So that in every case you say that the patent includes the middlings? A. Yes.

Q. So that if a man sold flour that did not include the middlings and branded it "Patent", you say he would be misbranding it, wouldn't you? A. Yes, I think he would.

Q. So that if he took out ten per cent middlings, ten or twenty-five per cent, the very high patent, and sold it to make beaten biscuits of, which is much consumed in this neighborhood, I understand, and further south, and then sold all the rest as a patent, that rest would be misbranded because it did not contain all the middlings, wouldn't it?

A. I don't know as that would be the fact there because I never seen those flours, I never seen anything like that, we don't have that class of trade.

Q. No, you don't make that kind, but you told Judge
1363 Scarritt that patent didn't have any meaning in this country except what the miller wanted to call it?

A. That is except as applies to the different individual mills in the different sections of the country.

Q. Yes, but you know that when you see the word "patent" on a sack of flour in the flour market that that means that that flour includes the middlings, that is what that represents, doesn't it?

A. I don't know as I would always understand that to be the case.

Q. You would think it would be misbranded?

A. I don't know as I would call it misbranded because there has been no standard fixed.

Q. So then, now, do you want to say now that it is just what the miller wishes to call it?

A. Yes, what the miller wishes to call it and the standards established in the locality in which they are trading.

Q. Yes, but the standards established everywhere is that the patent includes the middlings, doesn't it?

A. Well, I don't know as that has been settled.

Q. Is there any standard by users that the patent may be labeled a patent without falsehood?

A. I don't know, I know it has been done, at least I have heard it said.

Q. You think that is misbranding, don't you?

A. Well, I think it would be.

Q. You think it would be?

A. Might not be because it has not been established one way or the other.

Q. Now, with respect if flour is made of all yellow berry and it is called first quality wheat, is it misbranded?

A. It is not.

Q. If it is made of No. 4 and labeled first quality is it misbranded?

Judge Scarritt: I object to that as asking for the conclusion of the witness.
1364

The Court: I sustain the objection.

Q. Did you put galvanized pipes in your plant when you first began? A. We did.

Q. Why?

A. Why, I don't know just why we did, we put them in, that is why I know.

Q. Did Alsop install the plant? A. No, we installed it.

Q. You installed it? A. Yes.

Q. Do you observe on this Exhibit 25 that the threads at the end of the cap on the inside are rusted badly, practically destroyed? A. They are not rusty, not destroyed.

Q. It is not rusty?

A. Well, it is rusty but it is not destroyed, they are still there, are they not?

The Court: Let the jury see it.

Mr. Butler: I will do that in a minute.

A. Are they not there?

Q. Now, what is it, in your opinion, that made that rust, if you call it rust, so fast inside and none outside, but it was air passing through it or the gas corrugating it?

A. There is moisture in the arc as it goes through the air and warms it up, I think that there is more corrugation at any time in the winter than when it is hot, when it goes through the flame it is hot.

Q. Did you ever taste that moisture? A. Never tasted it.

Q. Don't you know it is nitric acid? A. I do not.

1365 Q. Don't know that. Ever see nitric acid on iron?

A. Yes, I think I have but I couldn't tell you now.

Q. Did you ever smell it?

A. I never smelled nitric acid on iron; I have smelled it, but I don't remember the smell, I would not [—] able to say now, it has been so many years ago.

Q. Well, now, moisture is not so bad on rubber, is it, as it is on iron?

A. There is more heat, that is right close to the electrifier, and the air is very hot right there.

Q. Was there an iron pipe running through this?

A. No, sir.

Q. The gas passes through this?

A. The gas passes through there.

Q. And when was it last in use? A. About ten years ago.

Q. Taken off for the purpose of an exhibit here?

A. Yes, sir.

Q. Did you brush it out on the inside? A. I did not.

Q. When you took your pipes apart every year to clean out the rust did you clean out this one too?

A. Why, I don't know whether they have or not; I have not noticed the mills.

Q. Just put your finger on the inside of that and see if it is rusted in there, put it clear in so you get in far enough. How do you suppose that came on there—rust?

A. That is not rust.

Q. You think nitric acid did that?

A. What do I think that is?

Q. Yes.

A. Why, I think that is more of a combustion from the arc.

Q. You think that is burned?

A. Yes, kind of a dust that goes through.

1366 Q. So that is the reason, because it was hot enough to burn rubber right at the agitator, that is the reason you put rubber there, was it?

A. Yes, sir,—no, that is put there for electrical purposes to insulate the pipe that goes through the mill from the machine itself in case of an electrical breakdown in the agitator or in the electrifier that the current would not follow along the pipe.

Q. So that the electricity would not follow along and kill the people in the mill?

A. And kill somebody in the mill, because it is high voltage.

Q. It is a high voltage and so high that you used that insulator to keep that current from spreading over the mill and killing people, didn't you?

A. We had the same if it was 100 volts.

Q. I am not asking you that, but that is the reason, because you feared that that current would kill people?

A. It is only natural to insulate all electrical machinery.

Q. When did you make a loaf of bread out of bleached flour and compare it with one unbleached?

A. Oh, I think we done it last fall, probably, possibly the last time that I have any special knowledge.

Q. Did you compare it with the aged, unbleached flour or the fresh unbleached flour?

A. I think it was a fresh unbleached flour, yes.

Q. How did it come out?

A. Well, one was much whiter than the other, worked up a little better, in its appearance.

Q. About the same size in loaf, volume?

A. About the same size.

Q. The only effect that you noticed then was on the color?

A. Color, and a general coloring of the flour.

Q. Did you ever take some flour and save it for three or four months till it was aged naturally, then make a loaf of bread out of it, and out of the flour made from the identical wheat under identical conditions make another out of the bleached
1367 and compare it? A. No, never done that.

Q. That would be a good way to compare artificial aging with natural aging, wouldn't it?

A. I suppose it would be.

Q. And to compare your so-called bleached flour or artificial aged flour with the same flour fresh is not a comparison at all except as to color, is it?

A. Well, it is a comparison as to color and the way that it works, that is, the handling of it, whether it is sticky or not.

Q. New flour is a little stickier than the same flour will become when it is aged naturally, isn't it? A. Yes, sir.

Q. Short dough is inferior dough, isn't it?

A. Well, I don't know about those, I don't know what you mean by a short dough.

Q. Inelastic dough is an inferior dough, is it not?

A. Inelastic?

Q. Yes. A. Well, I don't know.

Q. You don't know about that?

A. I don't know anything about doughs, that is the—

Q. A dough that has no elasticity like a rubber band is an inferior dough, is it not, resiliency, Dr. Shepard called it, that is an inferior dough, is it not?

Q. Well, to a certain extent; I don't know much about this.

Q. Now, if these witnesses who have testified here or know it to be the truth that the bleaching of flour by this process makes the dough short, destroys resiliency so that it injures it and damages it, doesn't it, or don't you know anything about that? A. No.

Q. So then did you ever see bleached flour that was bleached by the fumes of a sulphur candle?

1368 A. No,—with a sulphur candle?

Q. Just an ordinary disinfecting color?

A. No, I never have.

Q. Are you familiar with the bleaching of wheat by sulphur fumes? A. I never heard of that; it is something new to me.

Q. You are not aware then of what the effect of bleaching of wheat by sulphur candle is, or bleaching the flour?

A. No, I only bleached oats more particularly.

Q. And you are not aware that the bleaching process that makes the dough short injures the flour, for instance, even with the fumes of a sulphur candle it would make the dough very inelastic with any resiliency; you think that would injure the flour? A. I don't know.

Q. You don't know about that?

A. I don't know anything about that.

Q. That will be all.

By a Juror:

Q. How many pounds of this do you get out of a bushel of wheat? [Q.] Which one is that?

Q. All of them. A. All the cleaning?

Q. All you clean—about fifty-nine pounds?

A. Oh, we get screening, that is from 59 pound wheat, it will take out about two pounds, I would say, on an average.

Q. In the whole cleaning?

A. Yes, in the whole cleaning, two pounds is probably an inside figure; it might be a little more than that; it would be rather hard to state exactly.

By Mr. Butler:

Q. At your mill do you make a straight flour? A. Yes.

Q. You brand it patent? A. No, sir.

Q. What is the brand, give us the whole story.

A. Well, we have branded it patent, but we don't any more, we have not for some time, we never done it as a matter of deception, however, not at all.

Q. Oh, no, but because you wished to call it a patent?

1369 A. Well, yes, possibly; I have sent out flour when we exported, the exporters, branded that way.

Q. Never sold any to the American citizens, though, did you?

A. Yes.

By the Court:

Q. Sent it all to Europe.

By Mr. Butler:

Q. What per cent do you call straight?

A. Now, talking about per cent, we make what we always have called the 90 per cent patent and the 10 per cent clear; now, some others had low grades in as part of their patents.

Q. Now, I am not asking about the others; they will all be here, and we will ask them. A. Sure.

Q. Well, was that all?

A. I understand they talk about low grade flour being a flour stream, now, it may be possible that it could be termed a flour stream, but we have never termed it as such at our mill.

Q. Well, I am not informed what per cent you call a stream.

A. We ran the patents and clears together, the entire patent stream and your first grade stream into clears together to make our straight.

Q. And that is 100 per cent?

A. That is 100 per cent, of these two streams, if we count it the low grades as flour, why, then, it would only be 93, a 100 per cent patent.

Q. I understand, but 90 per cent flour from your mill is regarded as a patent, 10 per cent is clear and when the two are put together you call them a straight, but have sometimes labeled it "patent" and sold it to foreigners and also to Americans? A. We have.

Q. And bleached it? A. Yes, we bleached it.

Q. And this bleaching machine was dishonest enough to bleach that clear, was it?

A. Well, there is enough patents in there so that it does not hurt it.

Q. So that, notwithstanding there are always these branny defects and foreign matter in the bleached, if you bleach it and mix the clear with the patent, then you have found it practicable to label it all patent and sell it as a patent, haven't you?

1370 A. No, I don't think that we have deceived the people, we sold the two grades together.

Q. You sold the two grades together; I said you have found it practicable?

A. You are asking if I deceived the people by selling the flour that way?

Q. Then I misspoke myself; you have found it practicable by the use of this machine to bleach 100 per cent, all of your patent 90 per cent, all of your clear 10 per cent, label it as patent and sell it abroad and at home as such, haven't you?

A. We have sold the first grade and the second grade as such, yes, we sold our Cream XXXXX brand and Patent XXXX together through the same merchant.

Q. Now, I am not making myself clear or you are misleading me in some inadvertent fashion. You say that you bleached your patent and you bleached your clear or bleached them when they are mixed, and that you have sold it as patent, am I right?

A. We have sold it as our second grade, yes.

By the Court:

Q. Patent of yours?

A. Well, yes, the sacks have been marked so, a few of them, yes.

By Mr. Butler:

Q. As a matter of fact, you have found it practicable and have practiced it, to bleach 100 per cent of the commercial flour produced and put it in bags marked "patent" and sell it as such, haven't you?

A. Yes, yes, we have done that.

Q. Now, how long have you followed that practice?

A. Oh, we have been, I guess right along, no special change.

Q. Ever since you had the bleacher?

A. Yes, and we done it before.

Q. And did it before?

A. Had the same brand, we have had the same brand, why, we had one sack, I remember, from the second patent—

Q. No, I am not asking about the second patent.

1371 A. Well, that is one of our brands that we have had for twenty-five years.

Q. How old are you?

A. I am thirty-two.

Q. Since you were seven? A. Yes.

Q. And you know what was in those bags?

A. Well, I know that sack has been there at the mill all that time because it is one of our old brands.

Q. Since you were seven?

A. I don't remember when, seeing it myself.

Q. Are those sacks as rusty as the inside of that rubber hose? A. No.

Redirect Examination

By Judge Scarritt:

Q. You stated in answer to one of Mr. Butler's questions that the bleaching did not increase the nutritive value of the flour; did it diminish the nutritive value of the flour?

A. No, I understand it does not, what I mean—

Q. What do you mean by nutritive value?

A. Well, as I have seen it expressed heat units, that is the—

Q. That is what you are talking about, heat units?

A. Yes, that is what I mean by that, I have no absolute knowledge of that one way or the other.

Q. Now, he has asked you about the relative difference in the color and quality of the different grades of flour of wheat flour that was bleached. I will get you to state to the jury whether or not the same relative difference is found in the color and quality and strength of the flour after these different grades are bleached, as before?

A. Yes, the same difference is there between the—you mean between the first grade and clear, or between first grade and clear, or between first grade and straight?

Q. I mean the first grade and second grade and any other grade?

A. Yes, the same difference would be there relatively as to color and appearance—

1372 Q. That is, there would be just as much difference in the bleached flour after as there was in the unbleached flour before it was bleached in the different grades?

A. Well, you take the bleached patent and clear flour, it would show really more difference, because the uniformity, the little bran specks would show up in the clear when it was bleached, and it would not show in the unbleached clears.

Q. As you said before in your examination, as I understand you, that the defects are made more apparent by the bleaching if there were defects there? A. Yes, sir.

Q. Now, talking about this patent flour and about the amount of milling or amount of good flour that you would get out of the wheat. I will get you to state to the jury whether or not all the wheat in the kernel is good for bread making purposes and for commercial use, all the flour in the wheat?

A. Why, we don't get out of the wheat all the flour that we should get out of it right now because our milling processes are not as perfect as they should be.

Q. Right there, now, what do you in your milling experience and in your observation and your reading, what amount of what you might call good flour, or what you generally term patent flour, do you get out of that wheat, twenty or twenty-five years ago?

A. Oh, we used to get—

Mr. Butler: I object to the twenty-five years ago as too long for a thirty-two year old boy.

Judge Scarritt: He knows what the history of this matter is, if Your Honor please.

The Court: He says he is thirty-two years old now, I don't know.

By Judge Scarritt:

Q. Well, as far back as you remember?

A. Well, when I started in the mill the first time we were making, one plant that was in there then we were making 75 or 80 per cent patent; we were making 75 or 80 1373 per cent patent.

Q. How much according to your knowledge of the milling processes were made before that time?

A. Well, there was—

Q. What is the last you know of?

A. A number of years ago all the good flour they got out of a bushel of wheat was 15 to 20 per cent which was sold as first grades.

Q. How did they get more as time progressed?

A. Why, more improved machinery, better machinery and better cleaning of the grain, refinement and separation of the flour, different machine.

Q. Well, as the machinery improved for the purpose of separating the flour in the grain you got more good flour out of the grain?

A. Got more good flour out of the grain.

Q. And are you getting out all of it yet?

A. No, we are not.

Q. So that the improvement in the machinery is what has enabled you to get what you call a higher patent or a higher amount of middlings? A. Yes.

Q. A higher amount of good flour?

A. A higher amount of good flour.

Q. That is all that middlings means, isn't it, a good flour?

A. Yes.

Q. Now, did you make any change, did you make any change, did you have the same patent flour before you put the bleacher in as you had since?

A. Yes, the same percentage.

Q. And the same percentage of flour out of the wheat?

A. Yes, sir.

Q. So that you have not changed your percentage of the flour that you get out of the wheat and call it patent or second patent, or whatever your second brand was, after you put in the bleachers, just the same as it was before?

A. The same percentage, we remodeled the mill three years ago and we are getting more flour out of a bushel
1374 of wheat, but the percentages are about the same.

Q. And it is as good or better flour?

A. It is better flour, we are making better flour now than we did ten years ago.

Q. Why? A. Because better machinery.

Q. And the better machinery, and some millers have got better machinery than you have got, haven't they?

A. Yes, I guess they have.

Mr. Butler: We are not trying that now.

By Judge Scarritt:

Q. Anyhow about this yellow berry, or this red Turkey wheat that they have talked so much about, and the yellow berry, just explain to the jury, just take one grade of wheat, as far as that is concerned, is there both red Turkey and yellow berry in any one grain of wheat?

A. Well, that is rather hard to explain. Now the real Turkey wheat is only raised in one small district in Kansas.

Q. Well, what they call Turkey wheat all over Kansas?

A. What we call—we have a wheat in Nebraska that has a dark color, it is dark red, and it is glassy when it is cut open, and makes a very good flour, and that is what the millers in speaking with each other call their Turkey wheat; it is probably a wheat that would hardly grade Turkey however, in a market like Kansas City; and then we have our other kernel, the yellow berry or the yellow belly kernels that are mixed with them; they grow from the same seed, and they change back and forth. I have read a great many bulletins and articles on that and no one seems to be able to explain the reason why those kernels change from one to the other without any apparent reason.

Q. Well, they are both in the same kernel, aren't they?

A. Yes, sir, sometimes you can cut a kernel open and one half of it will be that mealy wheat and the other part of it will be glassy.

Q. And sometimes you can take a kernel and find a yellow spot on one side of it?

A. And be red on the other side.

1375 Q. And be red on the other side, and a small part will be yellow berry and the balance of it will be what you call Turkey red, or vice versa?

A. Yes, sir.

Q. It is absolutely the same wheat and the same flour, isn't it?

A. I have seen the two kinds of kernels growing on the same head of wheat.

Q. And whenever a grain of wheat has got that yellow spot on it they call it yellow berry?

A. They call it yellow berry.

Q. Notwithstanding that nine-tenths of it may if it had not had that yellow spot on it, would work into the red turkey?

A. Yes, sir.

Q. Or some proportion of it? A. Yes.

Q. Now, this flour which was seized in this case and in this sack here was made out of middlings?

A. Is it made out of middlings?

Q. Yes.

A. It has all of our middlings streams in it.

Q. Then it is made out of middlings? A. Yes, sir.

Q. And it meets the definition that even Mr. Butler has about middlings.

By the Court:

Q. Is there anything else?

A. Yes, there is some of the break streams in it.

By Judge Scarritt:

Q. Well, it has got all the middlings in it?

A. It has got all the middlings in it, yes, sir.

Q. It has got all the middlings in it, and what you call the break streams are some other streams. Does that alter the quality of the flour? A. No.

Q. Or hurt it in the least? A. It improves it.

Q. How does it improve it?

A. Because we find by testing, that is one reason why we put those streams in, that we get more gluten in those streams than we do in some of our other streams that are more starchy

in appearance; I never washed them out and tested them myself.

Q. And some of the other parts of the stream which improves this flour, without giving any of the details?

A. Yes, sir.

1376 Q. It can go into it if he wants it. Now, he is speaking about the quality and value of the 100 per cent flour. I will ask you whether the bleaching process made any difference in that all, whether it was just the same before as after, this long argument you have had about the 100 per cent proposition? A. I don't understand how you mean.

Q. Well, Mr. Butler was attempting to get you to say that there was in your flour the per cent that you put in this flour, and the per cent that you put in your second grade or your other flour, 100 per cent, one was marked XXXXX Patent and the other XXXX Patent. Now, as I understood you to say, you sold those both to the same trade? A. Yes, sir.

Q. Did you sell them as the same flour? A. No, we did not.

Q. Sold one as XXXXX and the other as XXXX?

A. Yes, sir.

Q. Why did you sell it as XXXXX?

A. Because it was a different grade of flour.

Q. They are a different grade of flour? A. Yes, sir.

Q. Now, did you do that before the bleaching?

A. We did.

Q. Did it make any difference about the bleaching?

A. No.

Q. As to who you sold it to or what you sold it for?

A. No, sir.

Q. You had the same brand and the same customers, the same trade before as you did afterwards? A. We did.

Q. Was it more satisfactory or less satisfactory after you commenced bleaching?

Counsel for libellant objected to the question.

The Court sustained the objection.

Judge Scarritt: I withdraw the question.

Recross Examination

By Mr. Butler:

Q. Did you ever brand a sack containing flour made at your mill in any label to indicate that the flour was bleached?

A. No, no.

Q. Or artificially aged? A. No, sir.

Q. Or treated with nitrogen peroxide gas?

1377 A. No, there has never been any ruling to.

The Court: He asked if you ever branded it.

- A. We have not done it.
- Q. Never have done it. Is the bleached flour indicated on brands generally in the market, or do you know about that?
- A. I don't know, that is, I would not—
- Q. Did you ever see a bag of flour that was branded bleached flour by the Alsop process or any other process?
- A. I believe they did do it in Kansas, but I never seen it.
- Q. You never saw a sack in your life, did you?
- A. I don't remember of any.
- Q. How long was that rubber hose in use?
- A. The rubber hose was in use a year and a half.
- Q. Did you have one there before it? A. Yes, sir.
- Q. What became of that?
- A. Well, that was thrown away when they moved, I suppose, on account of the changing of the length of connection to the pipe.
- Q. It was not long enough? A. It was not long enough.
- Q. How much pipe was thrown away?
- A. Well, there was no pipe thrown away.
- Q. Have you any of the pipe?
- A. There was no pipe thrown away.
- Q. Have you any ungalvanized pipe that was used for six or eight months up there to conduct that gas anywhere, ungalvanized?
- A. I think there is some nipples, that is a little short piece.
- Q. How long have they been there?
- A. Ever since the connection was made, a year and a half.
- Q. Why didn't you bring them down so we could see the difference between galvanized and ungalvanized?
- A. I can get some of them.
- Q. I wish you would. A year and a half? A. Yes, sir.
- Q. Did you ever brand clear and your first, second, third or also Fancy, patent?
- A. No, I don't remember ever branding a clear a patent, in fact absolutely I don't believe we ever done it; we generally exported our clear, under a brand, I have no recollection of ever—
- 1378 Q. What do you usually sell—you have a supply of these "Purity" bags on hand, called Fancy Patent, what do you usually put in them?
- A. We put in the same grade as we put in the Cream XXXXX sack.
- Q. The Cream XXXXX and the purity, the Cream XXXXX Fancy Patent and the Purity Patent is the same thing?
- A. Yes, sir.
- Q. Always has been? A. Always has been.
- Q. Why do you have two names for it?

A. Well, we got that sack about two years ago, a salesman wanted us to use it for some of his trade in connection with some other mills that were using that same bag, the Purity, and we had them on hand, and we substituted this sack in place of the Cream XXXXX to avoid confusion with the trade, merchants, in this particular case.

Q. When did you use that?

A. When did we use it, what do you mean?

Q. When did you begin to use the Purity?

A. When did we begin to use the Purity sack?

Q. Yes. A. We used it for several years.

Q. Before you commenced to bleach?

A. No, no, we had not this sack.

Q. Did you use it before the ruling of the Department of Agriculture prohibited bleaching? A. Yes.

Q. Which was on the 1st of January, 1909?

A. Yes, we had the sack in 1908.

Q. Did you use that sack before the matter of bleaching came before the Department of Agriculture?

A. Well, now, I don't know when the matter first came before the Department of Agriculture; I know about when it went in there.

Q. Well, was it about the same time you got this brand?

A. We started to use that sack in the spring of 1908 and used it regularly in the fall and winter.

Q. You put bleached flour in it? A. We did.

1379 Q. So the fact that you substituted this flour here, this unbleached flour, had nothing to do with your calling it "Purity", you don't call it unbleached Purity?

A. No, we did not, we have, I suppose, between twenty-five or thirty different brands, that is, special brands, and mill brands, that the different merchants use.

Q. But none of them are branded bleached?

A. None of them branded bleached.

By Judge Scarritt:

Q. Your brand to suit the merchant, do you, is that very often the case? A. Yes, sir, it is done.

Q. That is all.

John Wesener, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. Doctor, please state your name, age, residence and occupation.

A. John A. Wesener; 45; Chicago, Illinois; consulting, analytical and research chemist.

Q. I will ask you to state your qualifications which entitle you to testify as an expert on flour, or otherwise, in this case.

A. Well, I took my course in chemistry, part of my course in chemistry at the Michigan Agricultural College and finished it at the University of Michigan in 1888. I took a course in medicine at the College of Physicians and Surgeons in Chicago and graduated in 1894. I held the chair of chemistry in the medical college of the University of Illinois, which was 1380 formerly the College of Physicians and Surgeons of Chicago, for twelve years. I also was professor of chemistry in the Pharmacy School of Illinois for one year, and professor of chemistry in the American Dental School, which is now the dental department of the Northwestern University. I am president of the Columbus Laboratory, which is a laboratory located in the city of Chicago, and has been in existence since 1893. I have associated with me in this laboratory Dr. Adolph Gehring, for eight years director of the municipal laboratories in the city of Chicago, and Dr. W. A. Evans, our present health commissioner in the city of Chicago. The Columbus laboratory was originally devoted to strictly medical work and received specimens from all over the United States from doctors for analysis and diagnosed, I think I probably have examined something like thirty thousand urines; I have pumped out probably about three thousand human stomachs, and have examined the contents of these stomachs. I have made examinations of all excretas, and a great many of the secretions of the human body. Since the last ten years we have gradually branched out in the Columbus laboratory and are now doing a great deal of food work and have been doing special work on flour analysis in the last ten years.

Q. Now, I want to ask you—

A. I have not finished yet, if you want me to go on. I have written a great many articles on strictly research medical chemistry which were published in this country, and others abroad, in Germany. I have made a special study of the examination of the gastric juice for the human stomach, and some of this work is considered by some of the authorities as classical in its line, at least I have proved that hydrochloric acid is the acid in the stomach and that it does not exist in the soil as a free acid, but that the hydrochloric acid is generated out of the soil by the spontaneous destruction of that soil when it is stimulated. I have written many articles on other subjects referring to digestion going on not only in the stomach but also in the intestines, and such work was done particularly on examination of the urine to see whether 1381 the fermentation in the smaller intestines was due to acid fermentation, or whether it was due to putrefaction that is taking place. I have made quite a study

of flour and have examined flour for millers and bakers throughout the United States. We have a flour department and that is devoted to determining the commercial value of the flour; by commercial value I mean its baking value, its quality, its soundness, everything, because we are held responsible to the bar or the man that wants this opinion on the flour as to what that flour represents. I have written several articles with my associate Professor Tellar on the subject of bleached flour. I think the first one was away back in 1904, and some of these articles have been published, the last one in the Industrial Journal published by the American Chemical Society, that was in last October. We have written several others in addition to this and have made speeches relative to it before millers' organizations and also bakers' organizations on this subject. I am a member of the several chemical societies as well as of several medical societies, the American Medical Association; I am also a fellow of the Academy of Medicine and belong to the Industry Society of Chemistry, and so forth, and so forth.

Q. Now, I want to ask you specifically, have you been accustomed to making analyses of foods, grains of various kinds, including wheat and flour, and so on? A. I have.

Q. How long have you been engaged in such work?

A. Between ten and twelve years constantly.

Q. Examining flour and wheats and grains, and things of that kind? A. Yes, sir.

Q. Now, has your work been specialized along any particular line, and if so what?

A. Well, I have made a very careful study of wheat and flours, different kinds of wheat, and we have milled those wheats in our mill, we have a perfect little mill where we grind the wheat because we have to examine these wheat samples for the millers, as well as flour samples, and after we turn the wheat into flour we examine that flour in order to get an idea of the grade of that flour and in that way to grade 1382 that wheat. I might say that we have made such analyses for a great many of the experiment stations here in the United States like the experiment station of Iowa, Tennessee, Virginia, Michigan, for the experiment station of Canada, and we have also written a manuscript for the Secretary of Agriculture of the United States on the subject of Durham wheat.

Q. Now, then, your work in connection with flours involves examinations, and analyzing of samples of flours of various kinds? A. Yes, it does.

Q. And do you make many of such analyses in the course of a year, and if so, roughly speaking, how many?

A. Several thousand yearly.

Q. To what extent, if any have you done work on cereals? Well, you answered it, involved that in one of your answers. Have you done any work with bleached flour, and if so, to what extent?

A. Well, I have made a thorough study with my associate Professor Tellar, beginning some time in 1903 on the subject, and continuing up to the present time, making a thorough study of the bleached flour.

Q. Are you familiar with the Alsop process and with flour bleached by that process? A. I am.

Q. I don't know if this was included in your former answer, but I will ask you this specifically: How many samples of bleached flour would you estimate you have examined?

A. Oh, probably fifteen thousand, that is with my associates, as bleached flours came into the laboratory to be examined.

Q. Now, have you made any tests of bleached flour to ascertain if any damage of any kind was done to it, and if so state fully what you have done.

A. Well, such analyses we make on flour, it is for the purpose of determining its value, why, our examination has to go into a pretty thorough work in order to determine whether or not any constituent in that flour has in any way been changed or damaged. We search carefully for the quality of the gluten, the color of the flour, the absorption of the flour, the size loaf that the flour will make, the loaves of 1383 bread it will make; we go into the ash of the flour to see about what amount of ash would be in the flour for the particular grade of flour. We go into the quality of the bread made from such flour, the fermentation period, and as I have already stated, I believe the quality, condition of the gluten.

Q. Now, was this work done in the regular line of your business in ascertaining the commercial value of flours?

A. It was.

Q. Have you been accustomed during the past five or six years to receive samples of bleached and unbleached flours from millers and bakers for the purpose of comparing their strength, purity, baking qualities and other characteristics?

A. I have.

Q. And have you, as a matter of fact, made careful scientific comparisons of such samples

A. We figure very careful scientific comparison, the best that we knew how to do, and of course will say that when we first examined the first bleached flour that came to our laboratory—

Q. And when was that?

A. That was between the years 1903 and 1904, we proceeded with that analysis with a great deal of prejudice.

Mr. Butler: Just wait a moment. I move to strike out that answer as distinctly prejudicial.

The Court: Yes, that answer is improper.

Mr. Butler: And I move that the jury be told to disregard it as an improper answer.

The Court: Yes, the witnesses must recollect that they are not to argue the case, but answer the questions. It will be stricken out.

To which ruling of the court claimant then and there at the time duly excepted.

Q. And when did you first begin these investigations?

A. It was sometime in the year 1903 or 1904.

Q. Now, as a result from all of your work on commercial bleached flour and your study of the subject, I will ask you if you have found any constituent of flour either injured, changed or improved?

A. I have found no constituent in the flour injured. I 1384 have found no constituent in the flour improved, and the only change I have found in the flour is the coloring matter is gone as far as color appearance goes.

Q. Now, I want to take up first the question of gluten with respect to its strength, quality and elasticity. What do you find in those regards is the effect of bleaching, I mean?

A. I found that the gluten is not in any way changed from that gluten which is obtained from unbleached flour; they are identical in all particulars by a most careful and thorough examination.

Q. Now, as to the amount of gluten in flour bleached as compared with the amount in unbleached, the same flour unbleached is there any difference?

A. No, absolutely no difference, I don't think.

Q. Now, as to the odor of the flour as a result of bleaching what have you to say of that?

A. Find no odor in the bleached flour which is any different than the odor that is present in the unbleached flour.

Q. Now, as to the starch, any change?

A. Find no change in the starch.

Q. Now, generally, any other constituent of flour what have you found with respect to any change?

A. I find no change in the fat contained in the flour, and the only change that I have found is that the color has lost its yellow shade.

Q. Now, have you also made investigations to discover the effect of bleaching when the flour is made into bread, as to the effect on the baking qualities?

A. There is no difference in the baking quality—

Q. No, I just asked you if you had?

A. Yes, I have made that, pardon me.

Q. Now, first I want to take up—I will ask you this general question—do you find any quality in the bread[impairs]in any way by the bleaching of flour?

A. I found no quality impaired in the bread by the bleaching of flour as we receive flours at our laboratory.

Q. I will ask you specifically as to the odor of bread made from bleached flour as compared with bread made from
1385 unbleached flour?

A. I find absolutely no difference in the odor.

Q. I will ask you in the same way as to the flavor?

A. There is no difference in the flavor; of course flavor depends somewhat on the way you handle the dough, and that can be changed, you know, in several ways, independent of anything else.

Q. I will take that up later. As to the color?

A. I find that the color in the bleached flour is whiter than that made from unbleached.

Q. Now, as to the loaf volume?

A. There is no difference in the loaf volume, one is as large as the other.

Q. Now, may we understand, am I correct on this understanding, that these views you have expressed, these opinions both as to flour and bread, are the result of several thousand experiments and determinations?

A. Of several thousand it has taken several years to make these experiments.

Q. Now, I want to ask you specifically if, in your judgment, any damage of any kind is done to flour or to any constituent of it, or to bread made therefrom, by means of bleaching such flour by this Alsop process?

A. I find no damage or any change produced in the flour by bleaching said flour, and in flours as we receive them at the Columbus Laboratories which we find to be commercial flours and are sold as such on the market.

Q. No, damage? A. No damage.

Q. Of any kind. Now, to what extent, Doctor, have you found nitrite reacting nitrogen in bleached flours submitted to you?

A. Well, this nitrite re-acting nitrogen, or this substance that gives this red color with the Griess re-agent, I find to be present on an average about one part in a million [figures] as nitrogen.

Q. That is, as I understand it, in the thousands of samples which you have examined you have found the average amount to be about one part per million figured as nitrogen?

A. One part per million would be a good, fair, high
1386 average it would be a good, honest average, yes, sir.

Q. Now, I will ask you if you have found such nitrite re-acting nitrogen in flour, that is naturally bleached?

A. I have.

Mr. Butler: Wait a moment. We object to that because no foundation has been laid.

Mr. Elliott: Well, strike that out.

Q. I will ask you if you have made any examination of flours that have been naturally bleached to ascertain if they contain any of this nitrite re-acting material?

A. I have.

At this point court took a recess until 2 o'clock P. M.

Court met pursuant to adjournment, at two o'clock P. M., Monday, June 20, 1910, and proceeded with the trial of said cause further as follows:

John A. Wesener, being recalled, was examined by Mr. Elliott, and testified further as follows:

Q. Doctor, there is one question I intended to ask you. What work if any, have you done in connection with the analysis of flour, in connection with state institutions, other than experiment stations?

A. Well, we examine all the flours that are bought by the state of New York, for the Commission in Lunacy—that is, for all the state institutions of lunacy, and these flours are bought on the specifications which we have gotten up for that particular state, and the same is true for the State of Illinois, and also for the institutions in Cook County, Illinois.

Q. If I understand it, these flours are bought according
1387 to the standards that you set, or do you pass on the flour? They have to come up to the standards you set? Is that it?

A. We make a specification, which we recognize as making an excellent bread flour, and the sample which is offered when the bid is made, we analyze, and then, they send us the delivery, and if the delivery comes up to the sample, that flour is accepted at the price which was agreed on.

Q. Now, when we adjourned, I had asked you the question, of you had made any examination to determine if nitrite reacting material occurred in flour that was naturally aged and bleached, and you answered that you had. Now, I will ask you, have you found such nitrite reacting nitrogen in flour that is naturally bleached?

A. I have, to the same extent as that which has been rapidly bleached by the Alsop process, or through the oxide of nitrogen process.

Q. That is, flour which has never been near a bleacher, but, as they are exposed to the air, you have found, as I understand it, this nitrite reacting material in it.

A. I have.

Q. How does the amount of nitrite reacting nitrogen in naturally bleached flour compare with that in commercially bleached flour?

A. Well, it would have been present to the same extent, and even more than what we find in the commercially bleached flour.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: The answer is stricken out as not responsive.

By Mr. Elliott:

Q. The question I asked, is, how does the amount of nitrite reacting nitrogen, in naturally bleached flour, compare with that in commercially bleached flour?

A. It compares with that, in commercially bleached flour.

Mr. Butler: I move to strike that answer out, as not responsive.

1388 The Court: No, I don't think, myself, it is hardly responsive; but, if that is his answer, let it stand.

Q. I will ask you if you have testified that you have found, in these large numbers of samples of commercially bleached flour, an average amount of one part per million, calculated as nitrogen? A. I have.

Q. Now, how would the amounts that you found in naturally bleached flour compare with that amount? Would it be less or more?

A. I have found, in a great many instances, much less, and in some instances, more.

Q. I will ask you, Doctor, you have used, I suppose, this Griess reagent on flour, have you—on commercially bleached flour? A. I have.

Q. And flour that is naturally bleached, or aged?

A. Yes.

Q. Now, I will ask you, is it possible, by a chemical test, to determine if a flour has been naturally bleached, or bleached by this Alsop process.

A. It is not possible, by any chemical means, to determine whether flour has been naturally bleached, as by air, or by the use of the Alsop process.

Q. That is, if I understand it, if you applied this test, and you got that reaction, you could not say whether it had been naturally bleached, or bleached by this Alsop process? Is that correct?

A. I could not.

Q. Is there any difference in the chemical reaction, between natural bleaching, and flour bleached by the Alsop process?

Mr. Butler: Objected to as calling for his conclusion.

The Court: He may answer.

A. I have never been able to find any chemical difference between naturally bleached, and that bleached by the Alsop process.

Q. Now, how have you arrived at this conclusion. Will you tell us, and, if you have made any experiments, you may recite them.

A. Well, in this way: the coloring matter in flour is a distinct chemical body, and it reacts towards oxide of
1389 nitrogen in a certain way. That is, when it combines with these oxides of nitrogen, it loses its yellow color, and it does not make any difference whether the oxide of nitrogen is introduced by the flaming electric arc discharge, or whether the oxides of nitrogen be taken up from the air, by this coloring matter. Now, you take, for example, corn starch. That contains a—

Mr. Butler: (Interrupting) Just wait a minute. I object to that as argumentative, and not responsive to the question asked.

The Court: Yes, just confine your answer to the question.

Mr. Scarritt: He is going over the ground that his witness went over, if Your Honor please, and in the same way.

The Court: The objection is sustained.

Mr. Scarritt: Save an exception.

By Mr. Elliott:

Q. On this point, you stated there is no distinction between flour that is naturally aged, and flour containing nitric reacting material, and, flour that has been bleached by the Alsop process, containing nitrite reacting material. Now, I asked you on what you found that conclusion. Just explain to us your reasons for arriving at that conclusion. Have you made any experiments to demonstrate it, and if so what are they?

A. I have made experiments to demonstrate that. I have never examined a flour that had lost its color, but what I

have found nitrites, whether it was artificially or naturally aged. This coloring matter in flour is a base, just the same as sodium is, in starch, and it will combine with oxides of nitrogen, and when it combines with oxides of nitrogen, it loses its yellow color, but it would not make any difference whether it comes from the air, or whether it comes from an electrical machine, or from any other source. That is the natural chemistry.

Q. Now, have you, yourself, exposed flour that you
1390 found and determined was unbleached flour, that would not respond to this test—have you, yourself, exposed such flour to the air, and if so, with what result?

A. I have taken unbleached flour, which contained this yellow coloring matter, and have exposed it to the air, and have noticed that the color disappeared. I will say that the unbleached flour showed no reaction for nitrite reacting material; that, after the color disappeared, I found the nitrite reacting material, and sometimes, after an exposure of—say a week or so, as high as four parts in a million of nitrite reacting material. That was naturally aged, or oxidized, as we say, and the nitrites were introduced in that way.

Q. Now, let me understand that. You have taken flour that you found to be unbleached, and not respond to this test for nitrite reacting material, you have exposed that, yourself, to the air, and, after a certain length of time, you have found, as I understand it, as much as four parts per million of nitrite reacting material in it. Is that correct?

A. That is correct, sir.

Q. Have you found any distinct change in flour, where the same was naturally bleached?

A. Just repeat that question.

Q. Have you found any distinct change in flour, where the same is naturally bleached?

A. Well, the only change that I found in flour that is naturally bleached, is, the loss in color, and a certain amount of moisture.

Q. What could you say about the gluten?

A. The gluten is not in any way changed, except that a certain amount of water is taken out of that flour, which, naturally, will toughen and strengthen the gluten, but that is no chemical change in the gluten.

Q. To what extent, then, are you able to explain the change in flour, by natural aging?

A. Well, there are only two factors that we have been able positively to determine, in natural aging. First, that the color is removed.

1391 Q. Now, that is a result, is it. We find the color removed?

A. Yes, that is a result of this natural aging, due to the oxides of nitrogen in the air. Second, that there is a slight loss of water, in that flour. Outside of that, we have not been able to determine any other change that takes place in the flour.

Q. Now, how does that statement apply to flour that is bleached by this Alsop process?

A. Well, those same changes take place, only more rapidly, when flour is subjected to the gases produced by the Alsop process, namely, the color is changed from a yellow to a whitish coat, by the aeration; going from this agitator, and a certain amount of moisture eliminated.

Q. Well, let us get that clear, as to natural aging. You say you find the flour lighter in color, as I understand it, the only thing that you can explain as having taken place is, a loss of moisture? A. Yes, sir.

Q. And when you take a flour that is artificially bleached, or bleached by this Alsop process, you find the color is lighter—

Mr. Butler: (Interrupting) Just wait a moment. I do think that I will be constrained to object to this witness being led by argumentative questions on the part of counsel. I hope it will not be necessary to repeat the objection.

The Court: Well, I think myself that the witness ought not to be led so much.

Mr. Elliott: I thought he had testified to that.

Mr. Butler: Well, then, if he has testified to it, it is not necessary for him to do it again.

Mr. Elliott: You did not spend hours at the same thing, at all.

Mr. Scarritt: I would suggest, if Your Honor please, that Mr. Butler did the same thing all the time.

The Court: You should have objected.

Mr. Scarritt: We did object.

1392 The Court: Very well. You are criticising me, and I have changed my mind, but, without having any wrangling about this, this question is exceedingly objectionable on the ground it is leading. Now, I do not care to be reminded that I did something on some other occasion. I may have been wrong about it, and counsel may not have objected. I say this, because, now, this is about twenty times that I have been reminded that, as a matter of trade, I ought not to do now what it is said I did the other day. This witness does not need any leading, and ought not to be led. Now, let us get along.

Mr. Scarritt: Now, let me make this suggestion, Your Honor.

The Court: Yes.

Mr. Scarritt: This is our expert witness, and I thought Your Honor probably suggested at the time that Mr. Butler was going over these same things—

The Court (interrupting): Now, there you go again. Now, I was wrong the other day, and you are right, always.

Mr. Scarritt: No, I beg your pardon.

The Court: Now, that brings it down to a matter of egotism. I admit I am wrong.

Mr. Scarritt: No, I am not making that objection.

The Court: All right.

Mr. Scarritt: I am just suggesting, we can get at it quicker, by simply summing up these things, and ask him if that is what he means, so the jury will understand, rather than going through a long category, and leaving us all in confusion as to what we are trying to get at.

Mr. Elliott: I thought we always did that, with expert witnesses, when they testified to facts, in order to get their
1393 opinion clear.

The Court: I don't know what you do in St. Louis. We do not do that out here.

Mr. Elliott: I withdraw the question.

The Court: All right. Do not lead the witness. Let us get along.

By Mr. Elliott:

Q. I will ask you this. What will be your opinion as to the comparative results produced in flour, by bleaching it with the Alsop process, and bleaching it, or aging it, naturally?

A. Well, there would be no difference. I found no difference in the examinations we have made. Of course, if you allow a flour to age too long, of course it spoils and becomes rancid.

Q. Well, keep both within commercial limits.

A. Keep both within commercial limits, there is no difference whatsoever.

Q. Have you examined flour bleached by the Alsop process, and flour bleached naturally, to find out if they contained nitrite reacting nitrogen, and if so with what results?

A. I have, and I find that the results are identical.

The Court: He has said he found no difference, two or three times. Now, let us get along.

By Mr. Elliott:

Q. To what extent are nitrites, and oxides of nitrogen distributed throughout the world?

A. Nitrites, and oxides of nitrogen are found very widely distributed throughout the world. They are found in the air. They are found on a bright sunny day. They predominate, I should say, on a bright, sunny day, more than on a humid or rainy day. Rain will wash these products out of the air. They are constantly present in the air, whether fallen after a thunder storm, or in a clear, bright day, as for example, this day. They are found in certain beds, like, down in Chili, where we get the Chili saltpetre. They are found in some fertilized
1394 soil, to the extent of one and one-half parts nitrite reacting nitrogen, in a million. They are found in food stuffs, found in the animal kingdom, such as the saliva, and, some authors claim they are found in every part of the human body.

Mr. Butler: I have to strike out that part of his answer, beginning with the words "some authors".

The Witness: Well, I might add this—

Mr. Butler (interrupting): Well, just wait a moment. The objections are addressed to the court, Dr. Wesener.

The Court: Now, let me suggest. Now, of course, I don't want to limit anything, but the greater part of this has been gone over by witnesses on the other side. Now, let me ask, what is the use of taking up time, unless, now, you are going to contradict, impeach or rebut that which has gone before? In other words, why take up ham, bacon, and the air, on certain days, and all these things? I am asking you this, to see if we cannot save time. Now, unless you want to go farther,—unless the witness knows of nitrites in something that the witnesses of the government did not know anything about, what is the use of duplicating it? If you say, for instance, that this witness is going to find nitrites in those things that the witnesses for the government did not find,—for instance, saliva, from childhood to old age,—that has been gone over, over and over and over. And, in smoked bacon, and smoked ham, and so on. Now, I am simply asking if you are going to go further than that.

Mr. Scarritt: They limited it, if Your Honor please.

The Court: I have just distinctly said, Judge Scarritt, if this witness wants to go further, than the others, there will be no objection.

1395 Mr. Scarritt: We want to go further, and find more.

The Court: All right. You go on, and find where this witness—

Mr. Scarritt: (interrupting) That is, more than that, anywhere.

The Court: Now, just a minute, I would rather state my own case, always,—not that I can do it so well. Now, I have always reserved that right. That is not my statement. My statement is, if this witness says nitrites abound, and can be found in those things that the witnesses for the government did not find them in, then, I say go on, and show them, but why take up the saliva? Why take up ham? Why take up bacon? And why take up the condition of the atmosphere? Now, if this witness is going further, and say he has found them where the witnesses for the government have not found them, there is no objection.

Mr. Elliott: If your Honor please, it is not so much that, because I imagine it is suggested—

The Court: (Interrupting) It is not suggested. It has been testified to twenty times.

Mr. Elliott: I just simply put that question as a preliminary matter.

The Court: I was just trying to save time, but I suppose we are losing more time, now. But, it does not do, in my judgment, to take up all of those things and go over them, over and over and over. Of course, I know, it is hard to get scientists to keep within range, in their testimony. I know that, but, go on.

By Mr. Elliott:

Q. In view, Doctor, of the wide distribution of these nitrites throughout nature, as you have testified, what could be your opinion as to whether they are necessary to life?

1396 A. They are absolutely necessary to life; that is, this change that brings about the formation of nitrites, are absolutely necessary to life. Without it, life would become extinct, both animal and vegetable life.

Q. To what extent does this nitrite reacting substance remain in bread made from bleached flour?

A. Well, that depends, simply, on the way you make bread, and simply on the kind of yeast you use,—that is, whether you use a special kind of yeast, or whether you use the yeast, the way that they make their salt rising bread, at home. That is,

set the sponge at night, and, how you work the bread, how long you allow this fermentation to go on before you turn the dough into bread. I have found, and we usually find in the laboratory, that, in most instances there are no nitrites left in the bread, but, that there is always a reduction from eighty to ninety-seven per cent of the nitrite material in the bread.

By Mr. Butler:

Q. What was the last statement?

A. Eighty to ninety-seven, I think I said.

Mr. Scarritt: I did not understand that. Was that in the flour, do you mean?

Mr. Elliott: As I understood the witness, the reduction of the nitrites in the flour, as you find them in the bread, is always from eighty to ninety per cent, sometimes over.

Mr. Butler: I do not think the answer shows that.

(Last answer of the witness read by the reporter.)

By Mr. Elliott:

Q. I will ask you this: have you made any investigation to determine if nitrites are in bread, made from unbleached flour? A. I have.

1397 Q. And to what extent does this nitrite reacting substance remain in bread made from unbleached flour?

A. To the same extent, if the bread is treated in the same way, from the unbleached flour, as in the bleached flour, and the same extent. It all depends, of course, upon the amount of nitrites that you start with, and the kind of dough you are making, and the kind of yeast you are using.

Q. Now, let us take, in the process of bread manufacture, before the dough is ready for the oven. What do you say as to the presence or absence of nitrite reacting material in that dough?

A. Well, at that stage, if the fermentation has been of a long period, or if the certain kind of yeast has been used, that feed on nitrites, there might be no nitrites in the dough, at one time, when it is ready for the oven. If, on the other hand, that is the kind of yeast that does not feed quite so readily on the nitrites, or if the fermentation has been of a shorter period, why, there might then be some trace of nitrites left, but, as I have already stated, that is compared with what you found in the flour, there is always a reduction, even in those cases, from eighty to ninety-seven per cent.

Q. You used the words "long fermentation". I do not know just what is meant by that, but I will ask you this. Take a loaf of bread, or dough, rather, that would be made by the housewife, and allowed to remain over night, what can you say

then as to the disappearance of nitrites, and assuming that yeast had been used?

A. Well, in that case, the probabilities are that all of the nitrites would be consumed by the yeast, because that is a long fermentation.

Q. Have you, yourself, made analyses of doughs thus made, to ascertain that they contained nitrites? A. I have.

Q. Then, your statement that the nitrites may disappear from the dough before it goes into the oven, is based on actual experimentation. Is that correct?

1398 A. It is, yes, sir.

Q. I will ask you if bacteria and the yeast plant feed on these nitrites.

A. As far as I have been able to determine, certain bacteria and yeast feed upon these nitrites, and such nitrites are excellent food for such bacteria.

Q. Now, what difference is there, if any, Doctor, between bread that is made from unbleached flour, and bread that is made from bleached flour?

A. Why, the only difference that I have been able to determine is, that bread made from bleached flour is whiter, it is a better color, more even throughout the crumb of the bread, and, bread made from unbleached flour has color—yellowish, creamy, and this color may be in streaks, and part of it may be bleached out by the process of making bread, so that bread made from an unbleached flour may not be uniform throughout the cut of the loaf.

Q. What would you say as to the loaf volume?

A. There is no difference in the loaf volume.

Mr. Butler: That has been gone over very fully, this morning, Mr. Elliott.

Mr. Elliott: Well, I don't want to repeat. I do not remember, always.

Q. To what extent, if any, does the flavor of bread depend on the flour, or the kind of wheat, or the manipulation of the dough, or the mixtures put into it, in the bake shop—how would that affect, if at all, the flavor of the bread?

A. That would make a great difference in the flavor of the bread, the kind of flour you used, whether it is flour from a soft, winter wheat—

Mr. Butler: (Interrupting) I think I will object to this as immaterial. It does not seem to consider the fact of bleaching, at all.

The Court: Well, he may go on.

A. (Continuing) Or, whether the flour is made from
 1399 Number 1 Northern wheat, or hard winter wheat. Then, there is a big difference between the taste of bread made from what is commonly called clear flour, when compared with the so-called patent, from the same wheat, or the straight. There is very little difference in the bread made from the so-called patent, or so-called straight. They are the same wheat, providing the bread has been manipulated, and the ingredients that go into that bread are all the same. Of course, you must remember that, if you add lard, add milk, and other ingredients to the flour in the process of making bread, all of these ingredients that you add to such a mixture, add to the flavor and taste of the bread.

Q. Now, have you made any experiments to determine whether bleached flour has in any way been affected in digestive value, and if so, with what results?

A. I have made some very careful and exhaustive tests on that, and have never found, in these, in any one instance, where the digestive value of the bread made from bleached flour has in any way been changed, injured, or differs from that from the unbleached flour—bread made from unbleached flour.

Q. I will ask you, have you made these digestive experiments with the flour as a whole, or with separate constituents of the flour, such as the starch, and gluten?

A. I have made them from the flour, as a whole, and also separate constituents of the flour,—the starch, and the gluten.

Q. I will ask you if you have subjected these different constituents, and flour, itself, to the different digestive fluids.

A. I have, and the only difference that I have ever been able to find, is, when a flour was ruined by those gases, I find that the gluten digests quicker; and, that is perfectly natural, because mineral acids are the first stage of digestion in the human body.

Q. Doctor, I want to get your statement as to the
 1400 meaning of these terms "patent", "straight", and "clear", as applied to flour.

A. Well, I have been trying for a long time to give a definition of the word "patent". I cannot do it. I do not believe anybody can give a definition for the word "patent".

Mr. Butler: Well, it is admitted that, if you cannot, you think nobody can.

Mr. Scarritt: We move that that remark be stricken out as impertinent.

The Court: Go on, gentlemen.

A. (Continuing) The word "patent" originated, of course, when the roller milling process came in. That is, this roller system.

Mr. Butler: Now, we object to any historical narrative. He says he cannot define the word, and he thinks nobody can. Now, what is the use of going over thirty years of milling? That is, as far as patent is concerned.

Mr. Elliott: Well, I have asked him to explain.

Mr. Butler: No, you have asked him to define "Patent", and he says it cannot be defined.

Mr. Elliott: I did not ask him to define it. I asked him to explain.

The Court: Well, he says it cannot be done, but he is willing to try. Go on.

A. (Continuing) The word "patent" came in with the new process of the roller milling. Before that time, the Burr stones were used, and the flour, at that time, as I remember, was not called patent, but, when this roller system came in, all flour made by the roller system was called "patented flour", because the roller system was patented. By this system, they could make much more of the better grades of flour, and, after a time, these better grades of flour were designated by the words "patent", and "straights" and "clears", and so on. Now, as I understand, a patent means a flour which represents—the top grade of the flour, taken out of a certain wheat. It does not necessarily mean that each and every miller can do that with the same skill; that some specially equipped mills can do, that are especially fitted up for doing the finest sort of purification, or have skilled millers, that have made a life study of getting rid of the impurities. Then, again, a patent flour may represent one hundred per cent of the middlings.

By Mr. Butler:

Q. Of what?

A. One hundred per cent of the middlings. According to our analysis, if a miller takes out one hundred per cent of middlings, and he makes his first, fifty per cent, of those middlings they analyze a certain percentage of gluten, a certain percentage of ash, and, if he takes his break flour, and purifies it, and it is analyzed, it shows the same percentage of gluten, the same percentage of ash, and that is as good as the first fifty per cent. Now, if you mix those two, he has got what is commonly called a straight flour, but it analyzes one hundred per cent, and it is all patent.

Q. Now, is it your opinion—

A. (Interrupting) I have not finished yet. The patent, as it is used, simply refers to the best part of the flour, which contains the least amount of impurities. Now, if a man can get

rid of all those impurities, why, every bit of the flour taken from the middlings, can then be called "patent". It is the only description I can give.

Q. Now, I will ask you, as to flours which have been examined and passed as patent flours—is it within your knowledge that they vary in percentage of the total flour, and if so within what range?

A. Well, all the way from fifty per cent up to one hundred per cent.

Q. What is the difference between a hard and soft winter wheat, and between these and spring wheat?

Mr. Butler: That is objected to as irrelevant and immaterial.

1402 The Court: He may answer.

The Witness: What was that question?

By Mr. Elliott:

Q. What is the difference between hard and soft winter wheat, and between these and spring wheat?

A. Well, the spring wheat is hard wheat, and contains, usually, more gluten, and a higher percentage of ash, than that obtained from the flour obtained from the hard winter wheat, although a great many of the flours from hard winter wheat have a much deeper yellow color than the hard spring wheats. The soft winter wheats contain less gluten, are much lighter in color, and have less ash.

Q. I want to ask you in regard to the possibility of practicing deception, in any way whatsoever, by the use of this bleaching process. Take flour, as it may be bleached in any of the ways known to millers, what do you say as to that?

A. I say that it is absolutely impossible to practice deception by bleaching flour. It doesn't make any difference—

By the Court:

Q. (Interrupting): By what?

A. By bleaching the flour. It doesn't make any difference whether the flour is bleached, or unbleached, the same sort of a deception can be practiced,—if it is possible to practice such a thing about it,—by using unbleached flour, as it is using the bleached flour.

Q. Take a flour containing a certain percentage of impurities—and, by "impurities" I mean bran, or fibrin,—assuming that that flour has a yellow color, and take the same flour, bleached, I will ask you, in your judgment, which of those flours will conceal the impurities, to the greater extent.

A. The unbleached flour, by far, for the simple reason that the yellow color stains that flour, and in that way, of course, hides these impurities. The moment you take out that yellow

color, you have a white background, and all of these impurities are exposed.

Q. Doctor, in the process of bleaching by this Alsop machine, I will ask you if, in your opinion, either nitrous acid or nitric acid is added to the flour.

A. Not as far as I have been able to determine, by very careful tests and research.

Q. Have you examined the seized flour? A. I have.

Q. Does your answer apply to that flour? A. It does.

Q. I will ask you, assuming nitrous or nitric acids were added to this flour, in your judgment, would the acidity of the flour be increased? A. It certainly would.

Q. If there is neither nitrous nor nitric acid in flour, what would you say as to the presence of nitrites, or nitrates, as such, in flour?

A. Well, I haven't been able to find either nitrites or nitrates in the flour.

Q. I believe you are the inventor, yourself, of a process of whitening flour, are you not?

Mr. Butler: Will you please read the last question and answer?

(Question and answer referred to read by the reporter.)

Mr. Butler: That is the flour seized?

The Witness: In bleached flour.

Mr. Butler: Or, in unbleached flour, either?

The Witness: That would apply to the naturally aged flour, too. That would apply to naturally aged, too.

Mr. Butler: Those four parts to a million nitrites?

The Witness: There is nitrite reacting material, but that does not prove that it is nitrogen, Mr. Butler.

(Question repeated as follows: Question. I believe you are the inventor, yourself, of a process of whitening flour, are you not?)

1404 A. I am, based upon the chemical study of flour, and knowing the chemical reaction that takes place.

The Court: Oh, well, just say that you are the inventor of such a process.

Mr. Elliott: Very well.

Q. Is that process patented? A. It is patented.

Q. When was that patented?

A. I think it was in April, 1907.

Q. I will ask you if you have given opinions such as you have stated here, with reference to the bleaching of flour, or the damage to bleached flour, before you invented this process.

Mr. Butler: I will object to that.

The Court: Objection sustained.

By Mr. Elliott:

Q. Doctor, I hand you a bun, or roll, I guess it is.

A. That is a minature loaf of bread. That is not a bun.

Q. Well, a minature loaf of bread, and ask you to state what it is.

A. This is a loaf of bread which was made from unbleached flour. In making this loaf of bread, water was used which contained some nitrates—not nitrites, but nitrates. I added these nitrates to the water, because I was not able to get any water, the day I was home, that contained nitrates, but all deep well waters, and spring waters, and drift wells, are rich in nitrate salts, so, I added a very small amount of nitrate to my water, in making this sponge for this bread, and then fermented it in the usual bread process, and baked it, and, after I baked it, I cut off a slice, and then applied the Griess reagent to it, to show the nitrites in the loaf of bread. This shows the action of the yeast cell, on the nitrates, changing the nitrates to nitrites. They always do that. On all good, wholesome drinking water that is used in the making of bread—

Mr. Butler: (Interrupting) I object to that. I
1405 move to strike out this speech about good, wholesome water, and drinking water, and so forth.

Mr. Scarritt: He is telling what he put in it.

Mr. Butler: Well, he doped up some water, that he could not find anything in nature.

Mr. Scarritt: I object to that remark, if Your Honor please, and I am going to object to everything that is said.

Mr. Butler: That is what he swore to.

Mr. Scarritt: It was not what he swore to.

Mr. Butler: He could not find any.

The Court: The witness says not finding them, he put them in.

The Witness: I said I did not have time; that day.

The Court: Well, that isn't it, whether you had time or not. The fact remains you said you put them in.

The Witness: I did.

The Court: Now, I think that fact may stand. Now, let us get along.

The bread referred to was here marked by the reporter as Claimant's Exhibit 227.

By Mr. Elliott:

Q. Doctor, I will ask you if nitrites occur naturally in many waters? A. Nitrites?

Q. Nitrates, I should say.

A. Yes, they are found in drift well water, in the best of spring waters, and in all deep waters. Of course, the Chicago water, we have, is Lake Michigan, and it does not have any nitrates.

Q. How does the amount of nitrates which you put into this water—state what the amount was?

A. The amount of nitrates was, as nitrogen, is only 2.3 parts in a million, and that is—

1406 Q. (interrupting) How would that compare with waters with which you are familiar, containing nitrates?

A. It would be, if anything, a little less than what you find in these waters that I have designated.

Q. Now, explain just how you made this bread.

A. Well, that loaf of bread was made by what is called the "straight dough" method, a definite amount of flour, and a definite amount of water—

Q. (Interrupting) Now, wait. The flour, you ascertained to be unbleached?

A. The unbleached flour was used—a flour that did not give a nitrite reacting material test with the Griess reagent.

By Mr. Butler:

Q. Let me get that.

A. A flour was used, that showed no coloration with the Griess reagent.

By Mr. Butler:

Q. And, therefore, you knew it was not bleached?

A. And it had this yellow color, and, therefore, I knew it was not bleached, and that was made up by what is commonly called the "straight dough" process, and carried through in a three-hour set, the same as a straight dough process is carried through. Then, baked out, and, after it was baked out, it was cut, and then the Griess reagent applied to the bread, which, of course turned it to pink.

Q. Now, I understand this Griess reagent is applied to nitrates. Now, if there were no nitrites there, will you explain how you got this color there? How did that happen? That is what I mean.

A. Well, the color, in this substance came—was produced by the fact, or for the reason that the yeast cell was
 1407 changed from nitrates to nitrites, reduced from nitrates to nitrites, and, therefore, I added a certain amount of saltpetre, and that saltpetre in the water, being changed to potassium nitrite, by the yeast cell, gives this pink color with the Griess reagent.

Q. I hand you three bottles, marked "Claimant's Exhibit 228", "229" and "230", and ask you to state what they are.

A. 228 is a water extract from flour that has been naturally aged.

Q. What gives it the color?

A. The nitrite reacting material which is in this naturally aged flour.

Q. Well, has that got the Griess?

A. This was treated with the Griess reagent, and, of course, that gives it the pink color. This bottle, Number 229, is a water extract from the flour which was seized—this flour in question,—and was treated with the Griess reagent. This is filtered better than this bottle, here. This one Number 230, is a watery extract from the same flour that was seized, and then treated with yeast for an hour, or an hour and a half, and then treated with the Griess reagent, to show that the yeast took out all the nitrites.

Q. Now, I will ask you, for fear these colors may change, to just state the color in these different bottles.

A. Exhibit 228 has a rose-pink color, and the same is true in Exhibit 229. Exhibit 230 shows no pink—rose color.

Q. Now, let me see if I get this correct. This exhibit 228, is a flour naturally bleached, from which you have made an extract of water, and then you applied the Griess reagent to it. Is that correct? A. That is correct.

Q. And this liquid in Exhibit 229, is also a water extract, from the actual flour seized in this case, to which you have also applied the Griess reagent? A. That is also correct.

Q. And this bottle, Exhibit 230, is a portion of the water extract from the seized flour, to which you applied some
 1408 yeast, and the Griess reagent. You first applied the yeast, and then allowed it to stay how long?

A. About an hour and a half.

Q. Then you applied the Griess reagent to that?

A. That is true.

Q. Now, just state what the significance of this exhibit is, 230.

A. Simply proves that the yeast gets rid of the nitrites, either by feeding on them, or reducing them to lower ammonia compounds, or possibly nitrogen. I believe it is food for the yeast, so far as I have been able to determine.

Q. Let me ask you, is that the same yeast you use in bread?

A. That is the same identical yeast we use in breadmaking.

Q. Now, if you take that same yeast and put it in bread made from this flour, and assuming it contained nitrites, what do you say, on the basis of this experiment, would be the result?

A. It will either take all the nitrites out, or leave in probably one tenth part in a million.

Mr. Elliott: These exhibits are introduced in evidence.

Q. I hand you a biscuit, numbered 231, and ask you to state what that is.

A. This is a biscuit made from flour which was an unbleached flour, containing no nitrites, but this flour was exposed to the air in the kitchen, the same as we keep it in the pantry, or around on the table.

Q. You mean in your kitchen?

A. Yes, sir, in my kitchen. And this flour was then baked into biscuits—baking powder biscuits. A certain amount of the Griess reagent was used, of course, in this mixture, and the Griess reagent was simply used to bring out the red color, which would be produced when there is nitrites, or nitrite reacting material in any substance, such as flour, or otherwise.

Q. Did you ascertain what the nitrite content of this flour was, before you made this biscuit?

1409 A. That was one and one half parts of nitrogen, as nitrites, in a million.

Q. Now, let me see if I get this straight. This biscuit is made from flour which you had—

Mr. Butler (interrupting): That is all repetition, Mr. Elliott.

Mr. Elliott: There is just one thing I want to get.

Q. (Continuing)—made in your kitchen, and instead of mixing it with water, you mix it with the Griess reagent?

A. Griess reagent, and baking powder, yes, sir.

Q. Did you hear Miss Wessling testify? A. I did.

Q. And see the biscuits that she had made up with the Griess reagent? A. Yes.

Q. Would this be a comparable experiment, in your judgment? A. It would.

Mr. Butler: Just wait a moment. I think we should leave it to the jury whether it is or not.

Mr. Elliott: Well, I meant made in the same way.

Q. You did the same substantial thing?

A. I tried to make it the same.

Q. Now, will you break this open?

(Witness does so.)

Q. I hand you a little vial, marked Claimant's Exhibit 232, and ask you to state what that is.

A. This exhibit is some of my saliva, collected this morning, and treated with the Griess reagent.

Q. I hand you a second vial, No. 233, and ask you to state what that is.

A. That was reduced from two hail stones I picked up in Chicago, Saturday. We had a little hail storm there lasting about five minutes, and I picked those up off the roof, and washed them thoroughly, and then dissolved them, and treated them with the Griess reagent, showing, of course, the nitrite reacting material in it.

Q. I hand you a box marked Claimant's Exhibit 234, 1410 and ask you to state what that is.

A. That is a package of Kingsford Oswego Corn starch, and I have added—

Mr. Butler (interrupting): I think we will object to his going into that, as irrelevant and immaterial.

The Court: What do you claim the relevancy of this is, Mr. Elliott?

Mr. Elliott: We want to show that corn starch takes up nitrites from the air, just the same as flour would take it up from the air.

The Court: Oh, well, go on. I don't see much relevancy to it.

A. I added the Griess reagent to Exhibit 234, a package of Kingford's Oswego Corn Starch, bought on the open market, and treated it with the Griess reagent this morning.

Q. Now, when you treated it by the Griess reagent, just what did you do?

A. I added a few drops to the top of the starch, and, as the color shows there, it turned into pink.

Mr. Scurritt: Showing what?

A. Showing that there are nitrite reacting materials in this flour, or in this corn starch.

By Mr. Elliott:

Q. I hand you a jar marked Claimant's Exhibit 235, and ask you to state what that is.

A. 235 is a New England Boiled Dinner, which I prepared. It is composed of corn, beans, ham, potatoes, and white turnips,

and these were all cooked together, and then I poured off all of this water, because there was too much nitrites here to give a reaction with the Griess reagent, and added a little more water, and diluted it sufficiently, and then added the Griess reagent. There was too much nitrites present, to give a reaction of the Griess reagent.

1411 Q. Now, I want to ask you the significance of that? What do you find in that?

A. I find in this a nitrite reacting substance that gives this pink color with the Griess reagent.

Q. Now, you stated that there were too many nitrites in that, to give the reaction. Has the Griess reagent limitations?

A. Well, it only reacts when there is infinitesimal quantities of nitrites present. As soon as you get as little as 35/10,000 of one per cent of nitrite reacting material, the Griess reagent will not react—will not make this dye.

Q. I hand you two jars, marked Claimant's Exhibits 236 and 237, and ask you to state what they contain, mentioning them by number.

A. No. 236 is Pillsbury's Best Flour, unbleached, which was kept in the kitchen in this jar, properly stoppered, and then sealed with paraffin. I removed the paraffin this morning. This glass jar was put into my kitchen January 24, 1910. The nitrites in this flour, or nitrite reacting material, is a very, very minute trace.

Mr. Butler: What flour is that?

A. Pillsbury's Best; here is the same flour which was exposed to the air, No. 237, from January 24, to February 14, 1910, to show how rapidly the oxides of nitrogen in the air will take out the yellow color, and this contains two and one half parts of nitrite reacting material, per million, and the color is gone out of the one, and the color is still in this one, because the air has not been able to get at this sample of flour.

Q. One is 236, flour which was sealed so that the air could not get to it? A. Hermetically sealed, yes, sir.

Q. And Exhibit 237 is a portion of the same flour, exposed to the air? A. Yes.

Q. Of your kitchen? A. Yes.

Q. And that contained how much nitrite substance?
1412 Q. It contained, when I made the examination in the latter part of February, two and one half parts nitrite reacting nitrogen, per million.

Q. I now hand you two paddles numbered Claimant's Exhibits 238 and 239, and ask you to state what they are?

A. Exhibit 238 is the flour that I secured and placed in my kitchen. The right side of the bar is the flour which was kept in the bottle, which was hermetically sealed.

Q. Now, just put the figure 1 on the board, and mention it by number. A. And, two, here?

Q. Yes.

A. No. 1 is the flour which was kept in the bottle, and which was hermetically sealed. No. 2 is the same flour which was exposed to the air, in the kitchen. Both of these flour sticks here have been treated with the Griess reagent, to show the nitrite reacting material.

Q. These are the same flours that are in Exhibits 236 and 237? A. In those bottles, yes.

Q. Now, what is Claimant's Exhibit 239?

A. I will mark this 1 and 2, as I did the others. No. 1 is an unbleached flour, called "Hunter's Cream" flour, made by the Hunter Milling Company, at Wellington, Kansas, unbleached flour. This is the same flour, exposed in my room, at my hotel, for eighteen hours.

Mr. Helm: How long, Doctor?

A. Eighteen hours, and both of these were treated with the Griess reagent, to show the color.

By Mr. Elliott:

Q. The one on the right, No. 2, is the one that was exposed for eighteen hours in that room? A. Yes, sir.

Mr. Scarritt: Originally unbleached flour, did you say?

A. Originally unbleached flour.

Mr. Scarritt: When you say unbleached, you mean unbleached by this process, or any other process—chemical process?

A. Yes.

Q. Doctor, it has been stated here, in substance—not pretending to quote anyone—just the substance of the testimony, as I have understood it—that our body is not used to nitrites; that they are foreign to the body and so forth. What do you say as to the occurrence of nitrites in the body, and how they are disposed of?

A. Well, nitrites, as far as I have been able to determine, are present to a more or less extent, always, in the body. They are found in the saliva, for the reason that we take in nitrates with our vegetables that we eat—those that contain nitrates, and these nitrates are eliminated, to some extent, by the kidneys, also by the salivary glands, and when the nitrates eliminated by the salivary glands come in contact with the bacteria that always exist in our mouth, the nitrates are immediately reduced to nitrites. We swallow these. These nitrites go into the stomach, and there are other bacteria, down there, that

immediately begin to feed on these bacteria. In fact, I have taken subjects and sent them—

Mr. Butler: Wait a moment. We object to this as not responsive to the question.

Mr. Elliott: Why, it is entirely responsive.

The Court: Oh, no. He has answered the question. Now he is going off on another matter.

By Mr. Elliott:

Q. Have you made any tests to ascertain this fact?

A. Well, I have found in artificial digestion that the nitrites disappear in that digestion, and have also given some of my assistants test meals of bread containing nitrites, and pumped them out after a half hour, some an hour, and examined the stomach contents, and find no nitrites present.

Q. I believe you stated you were a physician?

A. I am. I practiced for about six or seven years.

Q. Are you familiar with nitrites, and the administration and effect on the body, and so forth?

A. Yes, I have given nitrites.

Q. I want to ask you this: From your investigation of flours treated by the Alsop process, state whether or not the quality or strength of these flours, or bread made therefrom, has been in any manner reduced or lowered, or injuriously affected?

Mr. Butler: Objected to as repetition, and calling for a conclusion, reading in the statute, is all he is doing.

The Court: Well, he may answer. That has been gone over a number of times. Go on, let us get through.

A. I have never found a flour that was bleached by the Alsop process which was in any way reduced or affected by this process.

By Mr. Elliott:

Q. Assuming that the flour in question has been subjected to a current of air, in which there has been an electrical discharge; that, by this process, the flour has been whitened, and there has been imparted to it nitrogen as nitrites, in an amount equal to 1.8 parts per million. Assuming further—

The Court: (Interrupting) Now, you mean plus what was already in there, do you? Let us understand that.

Mr. Elliott: Oh, no, after.

The Court: But he says nitrites are in everything. Now, you are putting this much more in? Plus what was already in?

Mr. Elliott: Well, I understand the witness to—

The Court: (Interrupting) Go on. I don't understand it. I will withdraw my suggestion.

By Mr. Elliott:

1415 Q. Assuming further that, after the flour has been prepared for food, there still remains in the food an amount of nitrogen, as nitrites, equal to one part of per million. What would you say as to whether or not the nitrogen, as nitrites, thus retained in the food, would or would not render such articles of food injurious to health?

A. It would not.

Q. Assuming all the facts to be true, as set forth in the preceding question, would the presence of that amount of nitrogen, as nitrites, in your judgment have any effect whatever upon the health of persons consuming the food?

A. It would not.

Mr. Elliott: You may take the witness.

(Five minutes recess was then taken, after which the cross-examination of the witness by Mr. Butler, proceeded as follows:)

Cross-Examination

By Mr. Butler:

Q. Doctor, you gave me the impression that you were in favor of bleaching flour with NO₂. Is that right?

Mr. Scarlett: We object to that, if your Honor please, as not a proper question.

The Court: He may answer.

Mr. Scarlett: We save an exception.

A. I am in favor of bleaching flour with any agent which does not introduce any deleterious substance to the flour.

By Mr. Butler:

Q. Are you in favor of bleaching flour with NO₂?

A. If NO₂ bleaches flour, yes.

Q. Does NO₂ bleach flour? A. It does not.

Q. Does the Alsop process bleach flour? A. It does.

1416 Q. What is the bleaching reagent? A. N₂O₃.

Q. N₂O₃? What is that?

A. That is nitrogen tri-oxide.

Q. Nitrogen trioxide? Now, is that the best bleaching reagent known? It seems that you favor bleaching. Now, I want to know if that flour that has been seized, has been subjected to an inferior method of bleaching, or whether it has been subjected to a proper, scientific bleaching?

Mr. Scarritt: We object to that, if your Honor please, as not proper cross-examination, and as having nothing to do with the issues in this case.

The Court: You may answer.

Mr. Scarritt: We save an exception.

The Witness: Read it.

(Previous question read by the reporter.)

A. Well, there are about eight answers to that question.

By Mr. Butler:

Q. And I do not suppose you will give me any, by the time you get through.

Mr. Scarritt: We object to that method of cross examination, if Your Honor please.

The Court: Go on and answer.

Mr. Scarritt: We except.

A. Nitrogen trioxide is one of the best, for bleaching flour.

Q. Is the Alsop process—

A. (Interrupting): I would like to finish my answer, sir.—and when bleached properly with nitrogen trioxide, it does not introduce any product which is objectionable to the flour, because it introduces the same thing that the flour will take up from the air.

Q. When bleached improperly, what does it introduce?

A. I do not understand, what you mean by "improperly".

Q. Well, you said when bleached properly it does not introduce anything. Now, when it is improperly bleached, what about it?

1417 A. I mean flour that is bleached for the purpose of removing the color, and still have it remain a commercial product.

Q. Yes? Now, I want to ask you some questions in chemistry that are very simple to you, but very hard for me, and if you will turn around and look at the blackboard. Does this flaming arc produce NO₂ in the Alsop process?

A. The flaming arc does not produce NO₂.

Q. Does the electric spark ever, under any circumstances, produce NO₂?

A. Not when the spark acts at that second, no.

Q. Does the flaming arc ever produce NO₂, under any circumstance?

A. Not the arc itself. It produces NO, but not NO₂.

- Q. When NO untied with the air, then NO₂ results?
 A. You get some NO₂, and some N₂O₃.
 .Q Some N₂O₄?
 A. Of course, we would have NO₂. You would naturally get some N₂O₄, because they are the same substance.
 Q. Is NO₂ nitrogen peroxide? A. It is.
 Q. Is there water in flour?
 A. Well, there is always from ten to 11 or 13 per cent of moisture, but you do not recognize it as water.
 Q. No, but it is moisture?
 A. Yes, it is moisture. You do not recognize it as water.
 Q. So that, in a 50 pound sack of flour, there is about five pounds of water?
 A. Yes, something like that.
 Q. And, in 50 pounds of bread there is from 15 to 20 pounds of water, is there?
 A. How much water?
 Q. 15 to 20—30 to 40 per cent.
 A. In 15 pounds of bread?
 Q. 50 pounds of bread. A. Oh, yes, yes.
 Q. If nitrogen peroxide gas comes into contact with water, will nitric acid and nitrous acid be formed?
 1418 A. After a time, yes.
 Q. Yes? Is nitric acid poisonous?
 A. In sufficient doses, yes.
 Q. Is nitrous acid poisonous?
 A. In sufficient doses, yes.
 Q. Is nitrogen peroxide a poisonous gas?
 A. In a large enough dose, yes.
 Q. Is N₂O₃ poison?
 A. In large enough dose, yes.
 Q. Is NO poisonous?
 A. If you could get it into the lungs as NO, I don't know whether it would be or not.
 Q. Is N₂O poison?
 A. N₂O? Well, if you would give a person probably—oh, eight or ten pounds of the liquid gas, it might be poisonous. I took as high as five pounds, at one setting.
 Q. It will render you unconscious at once, won't it?
 A. No, I took it as an anaesthetic, for a surgical operation.
 Q. It was the first anaesthetic known in surgery, wasn't it? A. N₂O?
 Q. Yes. It was what was known as "laughing gas"?
 A. I don't know whether it was or not. I think chloroform was the first one; I may be mistaken, I do not know.
 Q. If you pour nitric acid on flour, will it hurt the flour?
 A. Why, yes, it will ruin the flour.

Q. Will it poison the flour?

A. It will not poison the flour, no.

Q. Will it render the food harmful?

A. That would depend on how much nitric acid you put in.

Q. You saw some pieces of bread here on a plate? They were not marked as an exhibit, that had some nitric acid poured on them, did you?

A. I don't know whether I saw that, Mr. Butler.

Q. You did not? You cannot remember that? Well, if you were to take some ordinary nitric acid, such as you buy at a drug store, and wet bread with it, would it be good to eat?

A. Well, that would depend, entirely. I would not want to eat it, but it would not be poisonous, unless you put it in, just like this—

Q. Now,—

A. (Interrupting) Let me explain.

Q. Let me make my question clear. If you were to take nitric acid and soak bread in it, as people sometimes do in their tea, or milk, would the bread be good to eat?

A. It most certainly would not.

Q. It would be very poisonous, would it not?

A. Liable to be very poisonous in that case, yes, sir.

Q. Do you think nitric acid is a good condiment to season flour with?

A. Well, I do not believe there is any nitric acid in bleached flour that I have examined.

Mr. Butler: I move to strike that answer out, as not responsive.

The Court: That is not responsive.

The Witness: Read the question.

(Last question read.)

A. That would depend entirely on how much nitric acid you put into the flour.

By Mr. Butler:

Q. Is it a valuable addition to flour, in any quantities, however minute.

A. I know of no value of the nitric acid in flour, as nitric acid, itself, no, I do not know of any.

Q. Do you know the substance called nitrous acid, in solution, in water? A. I do.

Q. Is nitrous acid in solution in water, fit to use, to soak bread in, to eat, or will it make the bread poisonous?

Mr. Scarritt: We object to that, if Your Honor please, because there is nothing in this case upon which that question can be based, and it is not cross-examination of this witness, at all, and not pertinent to any of the issues in this case.

The Court: He may answer it.

Mr. Scarritt: We save an exception.

A. Well, I don't believe you could get any nitrous acid you could soak bread in. I do not believe you could buy it.

Q. Can't answer the question, then.

A. Well, nitrous acid—there is a certain amount in water, but it does not exist in that form.

Q. Do unbleached flour contain nitrites?

A. Unbleached flours contain nitrites.

Q. How do you know?

A. Now, wait a moment. I have not answered that question.

The Court: He was simply asking the question, to get an understanding of it.

Mr. Butler: Oh, I thought he said that they did.

The Court: At least, I thought he was reflecting on the question.

The Witness: I was, sir. Unbleached flour that contain their natural yellow color, do not contain nitrites, or possibly only the very minutest trace.

By Mr. Butler:

Q. So, it is true, generally speaking, that unbleached flours do not contain nitrites, is it?

A. Well, unbleached flours, referring, now, to the color in the flour—and the color has not been changed in any way—I would say that it would not contain nitrites. At least, I have not found it.

Q. Does freshly milled unbleached flour even contain nitrites? A. Yes, sir.

Q. Before bleaching? A. Before bleaching.

Q. Are nitrites normal constituents of wheat?

A. Very rarely.

Q. Usually, are they? A. No.

1421 Q. Almost unknown? A. No.

Q. It is not almost unknown?

A. Oh, no; it is not known that they sometimes contain nitrites, Mr. Butler.

Q. Nitrites of what?

A. Well, I am using the general expression in this, that is—

Q. Do you use it to mean nitrite reacting material?

A. That is the way I use it, yes, nitrite reacting material.

Q. Is nitrous acid nitrite reacting material?

A. That is one, yes, sir.

Q. When Mr. Elliott asked you if flour contained nitrous acid, or nitrites, and you said no, did you mean that it did not contain nitrite reacting material, and did you quibble on the meaning of that work?

A. I did not quibble. I did not mean what you have in mind, at all. I said the flour contained nitrites; that it did not contain nitrous acid; that it contained nitrite reacting material, which is not nitrites. Is that clear?

Q. Yes, it is clear, and it is clear to me that, by that answer, you sought to avoid disclosing that it contained nitrite reacting material.

A. You are entirely mistaken, Mr. Butler. You are entirely mistaken.

Q. Now, what nitrite reacting material is there, that is not a nitrite?

A. I will tell you. I will be very glad to do it; very happy. There are a lot of compounds that are not nitrites, that do not contain nitrous acid, but contain certain groups, that react with the Griess reagent, to produce the pink color, and they are not nitrites.

Q. Now, name all that you can of the nitrite reacting materials which are not nitrites.

A. Well, I will name one, which is the terpene nitrocite, and I will name another, nitroso phenol compound, will give a reaction with the Griess reagent, which is not a nitrite, nor has it any nitrite reacting material.

1422 Q. When you say that these flours which you have produced here in your experiments were unbleached, how do you know?

A. They contained the yellow color, and they did not give the pink color with the Griess reagent.

Q. Can you tell whether a flour is bleached or not, by its color? A. I can, by the way we examine flours, yes.

Q. By ordinary examination? Can the ordinary juryman, or layman, pick up flour, and tell whether it is bleached or not?

A. I should say they could not.

Q. Can you tell it, by examining it for nitrite reacting material?

A. No; that is simply one indication, that is all. That is simply one, but I go on the color.

Q. Is there any way known to flour dealers, or to merchants, by which flour bleaching can be disclosed, and if so, what way is it?

A. There is no way of disclosing whether flour has been naturally or artificially bleached.

Q. There is no way of disclosing it?

A. There is no way of disclosing it, so far as I know.

Q. You have examined how many samples of bleached flour, in your business?

A. It would be a mere estimate—probably 15000.

Q. In how many years?

A. Since 1903 or 4, up to the present time.

Q. This was done by the Columbus laboratory?

A. Columbus Laboratory.

Q. Is that a corporation? A. That is a corporation.

Q. Eleemosynary in its character? A. What?

Q. Eleemosynary in its character?

A. I do not understand the language.

Mr. Scarritt: I object to that, not having anything to do with this case.

The Court: Go on.

Mr. Butler:

1423 Q. Organized for the purpose of disseminating knowledge, or for making money?

A. It is for both. Same as you and I are here, working, for the same thing.

Q. It is organized for pecuniary profit?

A. For that and research work, because we have done it for the Agricultural Department of the United States, you know.

Q. During that same time, how many stomachs did you pump?

A. Oh, I think I have probably pumped out 3000 stomachs, to make diagnoses of the stomach.

Q. In six years, you have examined 15000 specimens of bleached flour, and pumped out 3000 stomachs. That would be how many stomachs a day, on the average—about two stomachs a day on the average? A. Yes, I—

Q. (Interrupting) And about ten samples of bleached flour, a day? A. Well, the flour—

Q. By the day?

A. Just wait a minute. The flour is about seven years, and the stomachs you will have to start back to the World's Fair, in 1893, and maybe before that time, because I pumped out stomachs when I was a medical student, a great many, and before I was a medical student.

Q. How many stomachs did you pump out after they had eaten bleached flour, to see whether you could get nitrites or not? A. Three in all.

Q. Three? You were sure the nitrites went in?

A. Yes; I was sure the bread contained the nitrites.

Q. And you are sure you could not get them out?

A. Oh, yes; I could get out the stomach contents.

Q. I know you got out the stomach contents, but you did not get the nitrites out?

A. The nitrite reacting material did not appear with the Griess reagent.

Q. So, you believed you did not get that out, then?

1424 A. I could not find it, because, you know this test is so delicate it shows one part in a million—that is, one grain in 72 ton.

Q. So, you are very sure you did not get it out, when you pumped out the stomach contents? A. I am.

Q. Do nitrites affect the hemoglobin of the blood?

A. The nitrites affect the hemoglobin of the blood, when they are there in sufficient concentration, and added directly to the blood, yes.

Q. And change it to methemoglobin?

A. It does, yes, sir.

Q. Destroys the oxygen carrying power of the blood?

A. That is affected for the time being.

Q. In sufficient degree, will asphyxiate you, just as certainly as strangulation will, won't it?

A. That is true, if you give it in such concentration.

Q. And, customarily, you will turn blue, anemic, and have what is called by the doctors cyanosis, won't you?

A. You are talking, now, about real nitrites, aren't you?

Q. Yes, real nitrites.

A. Nitrites as such, would do so, yes, provided you were given a large enough dose, but I never saw a case of nitrite poisoning.

Q. Is sodium in flour? A. There is not.

Q. Potassium? A. There is potassium.

Q. Magnesium? A. Magnesium and calcium.

Q. Calcium, but not sodium?

A. Very rarely, we find any sodium in wheat. Sodium chloride seems to be a poison to wheat.

Q. Will nitrogen peroxide gas, and water, treat sodium, or potassium, or calcium, and produce nitrite?

A. If you mix calcium or sodium or potassium with nitrogen peroxide, in water, you would slightly—yes, you would get nitrite there.

Q. Is an electrical machine of seven horse power sufficient to produce enough nitrogen peroxide to make nitric acid and nitrous acid, if it comes in contact with moisture?

1425 A. There would be some produced, yes.

Q. Do you know, as a matter of fact, that the flaming arc is used by the Ide-Birklen Company, in Norway, to manufacture hundreds of thousands of tons of nitric acid, every year?

A. I am very familiar with that process.

Q. That is true? A. Yes, that is true.

Q. So, this flaming arc is the best known method of manufacturing nitric and nitrous acid, isn't it?

A. Yes, and that is what is going to save the human race, is the fact that the Birklen-Ide process is being operated.

Q. So we can drink the acid, you mean?

A. No. We need it. The plants are going to need it.

Q. The plants? A. We live on the plants.

Q. Well, did you mean by that, when you said it would save the human race, that nitric acid was potable, fit to drink?

A. I mean by the fact they got this process up, and could make it by the flaming arc, and that we have now a new way to produce cheap fertilizer. That is what I mean.

Q. To make fertilizer? A. Yes, to fertilize the soil.

Q. And because it will make fertilizer, it will save the human race? That is what you mean?

A. Yes, fertilize the soil. That is what we need.

Q. Do you think that is a good reason why it should be added to bread?

A. I do not think that nitric acid or nitrous acid is added to bread.

Q. I know you do not, but assume it is, by the Alsop process; because it is a good drug, or chemical for fertilizer, do you think it should be added to bread?

Mr. Scarritt: I object to that as mere argument, if Your Honor please.

The Court: He may answer.

Mr. Scarritt: We save an exception.

A. That would depend entirely upon how much you
1426 added to the flour, sir.

By Mr. Butler:

Q. Well, will nitric acid destroy that pipe (referring to an exhibit)?

A. Just the same as oxygen will, in the air, yes, sir.

Q. Is nitric acid a corrosive acid? A. Certainly, yes.

Q. With an engine, seven horse power, generating NO₂, and passing out through a pipe, do you think it will corrode the pipe?

A. Well, I do not believe it would, any more than the oxygen with moist air acting on it would.

Q. I am not asking you about oxygen. I am asking you if nitric acid, made by an Alsop machine, of seven horse power capacity, and pumping through a pipe, will destroy the pipe, in time?

A. I do not know that the Alsop machine makes nitric acid. I do not know that it makes it. I have never found any nitric acid in the Alsop machine. I would have to assume that, first.

Q. Well, assume that.

A. Well, if it made nitric acid, and it was there in sufficient concentration, it certainly would—

Q. (Interrupting) Eat holes in the pipe, wouldn't it?

A. Yes. Destroy the pipe, the same as oxygen in the air would do it, with water; but I do not know that there is any nitric acid manufactured by the Alsop machine.

Q. And the oxygen in the air comes in contact with the outside of the pipe, doesn't it? A. Yes, and the inside, too.

Q. But, if you had nitric acid on the inside, you think it would beat the oxygen and the air, in working through?

A. Oh, nitric acid would, of course, eat out the pipe much quicker than oxygen, certainly. We all know that.

Q. Do you think that NO_2 is or is not produced by the Alsop machine? A. Yes, about 25 per cent of it is NO_2 .

Q. And the rest is N_2O_3 . A. N_2O_3 .

Q. The rest is some ozone? A. Very little ozone.

Q. That is a bad thing to introduce into flour, isn't it?
1427 A. Ozone?

Q. Yes.

A. Well, it is bad if you introduce enough of it. It is bad, because it injures it. Ozone does. We consider that a very fine revivifier, you know, and the elixir of life.

Q. Changes the blood into methemoglobin, doesn't it?

A. Well, ozone does, yes, to a certain extent.

Q. And if taken in quantities, would be fatal, for that reason?

A. Ozone, in large enough quantities, but, at the same time, we have got to have it right along.

Q. Now, I want to ask you this question: Do you think that this Alsop machine, hitched up with a seven horse power, we will say, for the purposes of the illustration, pumping gas for ten minutes, we will say, into one sack of flour, would or would not impart something to the flour?

A. Well, I could not answer that question, for the simple reason you have not told me how much of the gas was introduced into that 50 pounds of flour. If you can give me that, I will answer it.

Q. I say, all that a seven horse power made.

A. I do not know how much it makes. I could not tell you that, Mr. Butler.

Q. Well, if it produces enough of the gas to do something, would something be added?

A. If enough were added, of course it might produce something. I do not know.

Q. Well, what I am trying to get at is this: Suppose that we took that volume of gas that is shown in Exhibit 51, and mixed it intimately with one kilogram of flour, would that impart anything to the flour? Anything at all, I am asking about?

Mr. Scarritt: I object to that, if Your Honor please, because it is not shown that that much gas is introduced into the flour.

Mr. Butler: That is just what is shown was introduced into the flour seized.

Mr. Scarritt: No, sir.

Mr. Butler: That is just what was shown by three
1428 witnesses.

Mr. Scarritt: Shown that it was that kind of gas, but not that quantity of gas.

Mr. Butler: And that quantity. That is just what was shown, precisely.

The Witness: Now, repeat the question.

(Question read by the reporter)

Q. You, of course, refer now to a freshly milled and unbleached flour?

By Mr. Butler:

Q. Yes.

A. Yes, that would react with the coloring matter of the flour, and make a compound with the coloring matter of the flour.

Q. The coloring matter is, when the flour is separated into starch and oil and gluten, and so forth—the coloring matter adheres usually to the oil?

A. Well, I would not say as to that, except in so far as that, when I took out the oil, in an oil solvent, I found a coloring matter in the oil. I do not know whether it adhered to the fat or not.

Q. And the oil content is less than one per cent of the whole flour? A. Might be.

Q. Well, it is .62, stated in this patent that is in evidence.

A. I should say the oil generally runs about one per cent.

Q. You think that patent is wrong, with respect to the oil content, too?

A. Which patent is that?

Mr. Butler: Let me have the patent.

(Patent, heretofore marked as Exhibit 1, produced.)

Q. .62 of one per cent is my recollection of it.

Mr. Helm: That is what the Princeton University man got, isn't it?

Mr. Butler: Yes, I believe that is it. That is what Alsop says that he got in this patent which is in evidence.

1429 Q. .62 of one per cent. Is that about the normal oil content?

A. Why, no, that varies. Some patent flours have one per cent, and I would think the clear, or the low grades, would run much higher in the oil content, and, depending on the wheat, also.

Q. How much of the one per cent—we will call it one—in coloring matter?

A. Well, I have found as high as ten parts coloring matter in a million.

Q. Well, now, we are talking about the flour, and let us get on the same basis, if we can. We have one per cent. Now, there is 99 per cent other ingredients, and one per cent oil.

A. All right, about one tenth of one per cent of the oil.

Q. One tenth of one per cent?

A. It is ten parts to a million. I think that would be .01.

Q. .01?

A. .01 of one per cent, as I figure it.

Q. So, there are 99 other parts, plus one of oil?

A. Yes.

Q. Now, in that oil is the coloring? A. Yes, sir.

Q. And of that one, there is .01 part of it coloring?

A. Yes; it is ten parts in a million, on the whole flour.

Q. Well, I am talking now of the oil.

A. Well, I want to be certain of my figures, too. On the whole flour, it is ten parts in a million.

Q. Well, I don't know anything about your parts per million, but are you content with your answer, that, of the one per cent of oil there is 1/100 part of it, colored?

A. Yes. .01 of one per cent; that is ten parts in a million.

Q. So then, that would be one-thousandth of the entire volume—one one-thousandth of the entire volume would be coloring matter, if your figures are right?

A. What is that?

Q. One one-thousandth of the whole volume would be coloring matter. A. In the—

Q. Flour?

A. One—one-thousandth, yes.

Q. Now, there is a kilogram of flour that was seized, and here is the amount of gas which the testimony shows
1430 was used to bleach that flour. Do you say to this jury that that volume of gas all acted upon the color that

was found in the one per cent of oil—the one-thousandth per cent, and did not act upon the entire ingredient of the flour?

A. Well, you ought to change your question, a little bit. You said the color that is in the oil. The color that is in the flour?

Q. Yes, the color that is in the flour, that comes out with the oil as you have described it.

A. Yes. I will have to figure a little bit.

Q. Yes.

A. Yes, there would be enough color there to combine with that amount of gas, as I remember it.

Q. Do you think it will.

A. Ten parts of coloring matter will combine with 5.7 parts of nitrogen; about that amount.

Q. So, then, it is about ten to five, or two to one?

A. Nearly ten to six.

Q. Ten of coloring matter to six?

A. Yes; that would combine to that.

Q. How many parts of coloring matter are there, there?

A. Well, in Nebraska flours I have found as high as ten parts in a million.

Q. And how many parts of the gas, according to your figures?

A. I should say there is probably .2 of a milligram.

Q. How many cubic centimeters would that be?

A. That is 100 cubic centimeters, but that is .2 milligrams.

Q. Now, how much gas would you have to add, so that the color would be satisfied?

A. Well, at that ratio, assuming that in this flour here runs 10 parts coloring matter in a million, you would have to have—if you base it on peroxide of nitrogen, of course, peroxide of nitrogen would not do it readily, but based upon peroxide of nitrogen, it would be about 5.7 parts, as I figured it.

Q. But what I am trying to get at is, how much of this gas would you need, before you had the chemical power of
1431 that coloring matter exhausted, so that it would go in and form nitrites with the gluten?

A. Well, if you added more than what the coloring matter would take up, the chances are it would combine with the gluten.

Q. But, I want to know how much that would be. That is what I am trying to get at.

A. Well, it would depend entirely upon how much coloring matter is present.

Q. What is the average amount of coloring matter?

A. Well, I have found as high as about ten parts in a million.

Q. What is the average amount?

A. I could not say as to that.

Q. In all these years of examining this bleached flour—

A. I know, but this is a difficult matter to get at.

Q. Now, I want you to dictate to the stenographer your formula by which you determine how much gas the coloring matter of the flour will combine with, so we may show it to other gentlemen. I cannot understand you, and I would like to show it to other gentlemen, to see if they agree with you. I want you to dictate that in scientific terms, and using figures and expressions so we can test your opinion here by other men, and see whether it is well founded, or not.

A. Well, Professor Teller and I have been working on this coloring matter, oh, I think way back in 1906, and it varies in amounts, in different flours. You take the Nebraska flours, and the flours from the southwest, they contain a good deal of this coloring matter. This coloring matter is found widely distributed throughout the vegetable kingdom. The same coloring matter which is found in freshly milled wheat, or the flour of freshly milled wheat, is found in the yellow carrots, in pumpkins, and in palm oil. It is also found in the natural June grass colored butter, where cows graze on it, and passing through the body, goes into this yellow coloring matter. This coloring matter is what we call, in chemistry, very basic.

Q. I don't know as you understood my question.

A. I am going to give you everything you want.

1432 Q. What are you trying to give me?

A. I am giving you the history of this coloring matter, with its chemistry.

Q. I did not ask you the history of the coloring matter, or the chemistry of it all, and I move to strike out the answer, so far given, as not responsive.

The Court: Yes. That is sustained. He is asking you to give the formula.

By Mr. Butler:

Q. I want you to state the formula by which you determine that the coloring matter in this kilogram of flour will take up the gas in this Exhibit 51, and I want that in the technical language of a scientific chemist. A. All right, sir.

Q. Just the formula, and not the history.

A. Well, as near as I have been able to determine it, from the coloring matter which was crystalized, which I then treated with other chemicals, it is $C_{10}H_{16}$, known as the terpene group, and these terpens, some of them have color. The moment they become saturated either with chlorine, bromine, N_2

O₃, or nitrosyl chloride, the coloring matter becomes bleached, or decolorizes, because the coloring matter and these agents come in chemical union.

Q. Now, Dr. Wesner, does the answer which you have just given me satisfy you that it is full and complete enough for you to stand upon, as a scientist, in answering the last question?

A. All the thing I have to say is this, Mr. Butler, that I have not, as yet, made the combustion analysis on this coloring matter, but I have gotten an iodine number on this coloring matter which would correspond to C₁₀H₁₆, and I have got an increased weight on these pure crystals, when I treated them with N₂O₃, or nitrosyl chloride, which increase in weight would correspond to what this formula, C₁₀H₁₆, would take up.

Q. Now, are you now satisfied that you have explained 1433 it satisfactorily, as a scientist, and you are satisfied to leave your statement upon the record, about determining that the coloring matter of this kilogram of flour, which is marked Exhibit 50, will take up gas contained in Exhibit 51?

A. As far as the kilogram is concerned, I am. Not peroxide of nitrogen. Not peroxide of nitrogen, but N₂O₃, NOCl, chlorine bromine and iodine.

Q. This nitrosyl chloride, is the best bleaching process known, isn't it? That is the one you invented?

A. I could not say whether it is the best.

Q. And the Government seized some of the flour bleached by that, that was made up here in Nebraska, and the seizure is being tried at St. Louis now, isn't it?

Q. Why, I understand the Government has made a seizure of flour bleached by this material. I do not know whether it was bleached by the nitrosyl of chloride process, or the Alsop.

Q. Did you examine the flour, to find out how much nitrite reacting material it contained?

A. I have never examined that flour, am not personally interested in the bleaching company.

Q. Just invented the process?

A. Invented it and sold it.

Q. Now, let me see. On this loaf of bread, by means of the yeast, you put nitrites into the bread, so that the nitrites show on the Griess reagent?

A. No, nitrates with water. The water contained the nitrates.

Q. You, but by means of the yeast, you make them nitrites, didn't you?

A. Why, I baked bread, and of course I had to use yeast, and the yeast changed the nitrates into nitrites.

Q. So, the yeast put the nitrites into the 227, there being a little nitrate in this potable drinking water that you used to make the bread with?

1434 A. That it generated the nitrites.

Q. And, in 230, the yeast took the nitrites out?

A. Took nitrites out?

Q. Yes. A. Yes, that is right.

Q. So, this yeast will do whichever way you want it to—it will put nitrites into bread or take it out of the flour?

A. It will put nitrites into the bread, when you have nitrates to start with, because the ferment of the yeast—not the live cell, now, understand, but the ferment that the cell secretes, like pepsin, from the stomach, for example, that acts upon the nitrates and reduces them to nitrites. Then, the cell comes along, and takes up the nitrites.

Q. And, Dr. Wesener, these nitrates, such as you added to the bread, are common in water, are they not?

A. The nitrites?

Q. Nitrates.

A. Are very common to spring waters, drift wells, and large wells.

Q. And, in the speeches that you have made all over, before bakers, and millers, and before the Secretary, you have held forth to the extent that there could be no danger of nitrites, because the yeast destroyed the nitrites, didn't you?

A. Yes, and I still hold to that.

Q. But, if they happen to use the water which runs in the farmer's well, or in the spring, where these nitrates are so common, the yeast will put in the nitrites, won't it?

A. Certainly, yes. That is right. You are correct.

Q. Then what are you trying to prove by these speeches that you have been making?

Mr. Scarritt: I object to that, if Your Honor please.

The Court: Yes, I think that is objectionable.

By Mr. Butler:

Q. Now, you have gone before bakers' and millers' associations, and written for the millers papers, and all that?

A. And scientific societies,—please put that in.

1435 Q. And advocating in every conceivable way the idea of bleaching flour haven't you, and advocating this Alsop process, and this nitrogen peroxide gas? You have done that constantly since the thing came in, haven't you?

A. I have never defended the Alsop process, as an Alsop process, or any other bleaching company, but I have only defended the pure, honest science, in this thing, and I have had no replies from the other side, to my scientific papers.

Q. No, I think you are wholly unanswerable. Did you state this, "If you take a piece of ham for breakfast, you are going to increase the nitrite in your saliva, inside of ten or fifteen minutes." A. That is right, yes, sir.

Q. "When the gastric juice begins to work, the stomach will absorb the saliva, and throw it out through the salivary glands. I would say, further than that, you get an individual taste of saltpetre, potassium nitrate, that, inside of five minutes, you would find nitrite in the saliva." You said that, to Secretary Wilson, didn't you?

A. Let me see what that said, there. Is that mine? You will have to show me. I am in Missouri, now.

Q. Well, don't you recognize that as the truth?

A. I recognize some of it.

Q. Now, isn't it true that, if you eat ham, with these nitrites in it, that that will put the nitrites in your saliva?

A. Yes.

Q. Isn't it true that, if you eat bleached flour bread, with nitrites in it, that that will put it in your saliva?

A. Yes, these nitrites.

Q. Do you agree with Judge Scarritt on 90 per cent of all the flour in the country, is filled with nitrites?

A. I could not say.

Q. You have reported this, that 90 per cent of it has?

A. Oh, in those days, yes.

1436 Q. Now, isn't that one of the reasons why you find nitrites in the saliva, because people are fed nitrites in bleached flour bread?

A. I should say not. You will not get many nitrites from bleached flour.

Q. Why?

A. Because the nitrites I do not think would ever reach the circulation, from bleached flour, as it is commercially bleached. No, I think it is destroyed in the stomach. I do not think they would ever pass the wall, to speak of. I do not believe they would hardly pass the wall.

Q. Now, this specimen of this New England dinner. Where did you cook that?

A. Columbus Laboratory—the corporation you spoke of.

Q. And cooked it for the purposes of evidence in this case?

A. I just wanted to make a picture demonstration.

Q. And you found more than 35 parts per thousand?

Mr. Scarritt: Million?

Mr. Butler: No, more than three and one half parts per thousand.

The Witness: No, I said 35/10,000 of one per cent, which would be 35 parts in a million.

Q. 35 parts in a million?

A. Yes. Now, I do not say that that corned beef or ham contains that much, but I boiled it all down, concentrated it, you understand.

Q. Oh, I see. At the Columbus?

A. I found it became so strong, what was in there, understand. Then, it became so strong in spite of the little that was present, the Griess reagent could not show the color.

Q. I see. You concentrated it and boiled it down, and you got it so strong that it wouldn't work, and then you had to dilute it back?

A. No, I am sorry I did not bring that liquid, because, really, it would have been against you.

Q. Well, that is the reason you left it at home, I am sure, because you did not want to hurt us?

1437 A. No; I thought that was enough of a demonstration. I poured that off, and discarded it.

Q. Now, I am going to stick to the thousand. In your opinion as a pharmacologist, toxicologist, and medical man, three parts per thousand of nitrites of sodium, in bread, would render it injurious to health?

A. Three parts of nitrite of sodium, in bread?

Q. Yes.

A. Well, of course I would have to assume there is sodium in the flour. There is no sodium there you know, and there is no sodium nitrite, and no nitrite in the flour, nor in the bread, you know. It is an assumption, of course, that does not exist in this case.

Q. You think it does not?

A. Oh, I know it don't. I know it don't.

Q. Well, I know, but I want to find out whether this stuff that is necessary for life—I want to find how much we must put in our bread, so we will live long.

A. All right. I figure that in about two and one half loaves of bread, you would get about 4.3 grains, or three parts in a thousand, sodium nitrite. 4.3 grains, and a half a loaf a-day, would be a very good average, I think. That would be less than a grain a day, wouldn't it? Well, I do not know just whether a grain a day would really have an injurious effect, or not? I doubt it, because I think the bacteria would eat it up—live on it, as food, but I have not made that particular experiment. I have given, in one case, as high as ten grains sodium nitrite, and I have given it in smaller doses for some little periods.

Q. Well, doctor, I want to be perfectly fair with you, and I am sure you want to be perfectly fair with me.

A. I certainly do.

Q. In your answer to the last question, you said that would be about a grain of sodium nitrite, each day, in bread?

A. On a half a loaf.

1438 Q. On a half a loaf consumption. I think that is fair.

Now, what I am asking you to tell this jury is whether or not you think that would injure the bread and make it dangerous to health?

A. Well, I should say that, in the first place, you cannot have sodium nitrite in the bread.

Q. So? Now, don't bother about that. I mean, assuming there is sodium in the bread, no matter how it is in the bread, or whether it [as] put in purposely.

A. As sodium nitrite?

Q. Yes, as sodium nitrite. Now, would that hurt the bread any?

A. I doubt very much whether that amount would hurt the bread, and make it injurious.

Q. Then, your idea would be that, for the sick and the well, the old and the young, the babies and the grown persons, that that amount of sodium nitrite in bread would not render it in any degree, however slight, injurious to health?

A. I doubt whether it would. Of course, I would want to experiment on that.

Q. That is, you would want to take a baby, and for about a month, if the baby lived, keep giving it the grain of the sodium nitrite, in the bread, to see whether it would be injurious to health? A. I did not know babies ate bread.

Q. Didn't you? A. No, I don't know that they eat bread.

Q. You had better come to my house once, and see whether they do or not.

A. Well, I have never had any; perhaps that is the reason I do not appreciate it.

Q. That is the reason you are in favor of nitrites in food, perhaps. A. I am sorry.

Q. Now, I want to ask you, as a doctor, whether or not a grain of sodium nitrite in the daily bread, consumed by a child old enough to eat bread, would render that injurious to the health of the child? A. It might.

1439 Q. Do you think that it would?

A. I could not tell, positively, unless I might make such tests.

Q. Now, with respect to an adult in middle age, like this jurymen, here, a well, strong, healthy looking man. Do you think that a grain of nitrite of sodium in this bread each day would be injurious to him, at all, in any degree?

A. Well, that would depend somewhat on the resistance of the jurymen.

Q. Well, we will say he is a normal man.

A. Well, he looks it.

Q. Yes?

A. And what his physical condition is, and the rapidity with which the nitrite is eliminated by the bacteria, and by the natural defense of the body,—and the body of course, has defenses for nitrites, the same as it has for other poison. I would not be able to answer that question, because you are getting down to such a small dose that it is rather difficult, you know, to ask if any injury would be produced.

Q. Do you think you could perform that experiment?

A. Oh, yes; yes, I can.

Q. Now, let us get at this: Would two grains a day,—that is, one for breakfast and one for supper—injure the ordinary man's health, in your judgment?

A. Why it might do that; yes.

Q. How would it do it? Now, would that injury manifest itself?

A. Why, it might produce some gastro-intestinal disturbances and it might bring about some tissue changes. I would not be able to tell, because I haven't had any experience with sodium nitrite in any experimental way. You see, sodium nitrite don't enter into this question, at all.

Q. Are there any nitrites that are poisonous.

A. I would consider that sodium nitrite, and potassium nitrite, and amyl nitrite, in sufficient doses, are poisonous, most certainly.

Q. Amyl nitrite poisonous?

A. When given by inhalation, I believe, more so than if given by the stomach.

Q. This is an organic nitrite?

A. It is an organic nitrite. That is a real, genuine
1440 nitrite.

Q. Two drops of that, on a handkerchief, is a dose?

A. Yes.

Q. And will give all the symptoms of the full medicinal dose of nitrite, won't it?

A. Sweet spirit of nitre is another way, you know.

Q. Do you think it would be possible to add nitrites enough to food to make it injurious to the health of the party?

A. Why, it is possible to do anything. But I do not think any commercial man would be foolish enough to ruin his business by doing such a thing.

Q. So you think the public would be perfectly safe to rely upon this; that no man would be wild enough to injure his meal, or his flour, or anything else, by putting in enough of the nitrites or nitrates or other compounds to injure his business?

A. Never found that, in all my examination of food stuffs.

Q. So, you hold that the public may rely upon the sound business sense of the commercial people of this country, not to add poisons to food, don't you?

A. That, and the scientists whom they have employed to protect them along that line, yes, sir.

Q. And you are one of the scientists whom they have employed to protect them along that line, aren't you?

A. Well, they haven't employed me, but I have gone into it for my own satisfaction, because I love this particular science, myself.

Q. Well, at any rate, you are engaged in that work, for love of the Lord, or love of yourself, or love of the people, or money,—you are engaged in it, and are defending that thing, are you not?

A. Because I know I am right. That's the reason I am defending it.

Q. Now, let's see. Do you agree that the xanthro proteic reaction will take place in overbleached flour?

A. Certainly; and that flour is no longer commercial flour. It is worth about as much as "red dog" would be worth.

1441 Q. And because it has no commercial value, you think the government ought not to criticise the making of that thing, don't you, because you may rely upon the millers, that they won't make it, don't you?

Mr. Scarritt: We object to that, if Your Honor please.

The Court: I think, Judge Scarritt, it is perfectly proper to show his relations with the situation. He said, in substance, that he thinks they can rely upon the millers and producers. He may answer.

Mr. Scarritt: We save an exception.

The Witness: Well, the only object in bleaching the flour is to remove this yellow color, the same as nature does. Now, if any miller is foolish enough to put nitric acid in, enough to burn up his flour. He would lose everything.

By Mr. Butler:

Q. But it is the nitric acid that makes the xanthro protein?

A. That is, where you get nitric acid enough.

Q. This yellow flour that has been here,—that was taken from around the spout, and so on, that had been there too long—that is the xanthro protein?

Mr. Helm: Do you say, Mr. Butler, that any of that flour was brought here?

Mr. Butler: Yes.

Mr. Helm: Well, that was brought here from the laboratory.

Mr. Butler: Well, perhaps I have my exhibits confused, but I will bring in a spout that was eaten up by the "American", that was just like this Alsop process.

Mr. Scarritt: We object to that, if Your Honor please, and ask that it be withdrawn.

Mr. Butler: All right. I will withdraw it.

1442 Mr. Scarritt: I ask that the Court pass upon it.

Mr. Butler: I consent that the Court may withdraw it.

The Court: It may be withdrawn.

By Mr. Butler:

Q. Now, the overbleached flour that remains exposed to the gas too long, is the xanthro proteic reaction, isn't it, and is the result of nitric acid, isn't it?

A. Well, I would stop at the word "overbleached",—

Q. "Overtreated," I will say.

A. Well, "overtreated", I would stop long before you got any xanthro proteic reaction. I wouldn't consider that flour. You wouldn't dare to, in our business. You wouldn't have any business.

Q. That is it,—you would ruin the business?

A. Yes. We wouldn't get any flour to test.

Q. But I am trying to find out whether that shows the nitric acid reaction.

A. If you pour nitric acid on it, it will produce xanthro protein. Everybody knows that.

Q. Now, I am trying to get your opinion, as a scientist. Assuming that flour remaining in the agitator, as described by the witness Dennison, on the side of the agitator, turns yellow, like sulphur, I want to find out if that is the xanthro proteic reaction?

A. That may be the xanthro proteic reaction.

Q. That is the result of nitric acid, isn't it?

A. It might be the result of nitric acid, or it might be the result of the oxides of nitrogen.

Q. You were here when this Red Wing man described that?

A. I think I was. I don't remember that.

Q. When the xanthro proteic reaction takes place in flour, is the flour made injurious to health?

A. Why, I don't call it flour any more.

1443 Q. Well, call it flour. Is that substance made injurious to health?

A. I have made that body, and given it to a rabbitt, and it never touched the rabbit.

Mr. Butler: I move to strike out the answer, as not responsive.

The Court: It may be stricken out.

By Mr. Butler:

Q. This pure food and drug act was not passed for the protection of rodents, or was it passed for the protection of human beings?

A. I understand this pure food act was intended for the benefit of the human race. The question is, what is beneficial for the human race?

Q. I want to know from you whether that substance,—the flour after the xanthro proteic reaction has taken place, and it has been turned yellow—is, in your belief, a wholesome food product for human being?

A. Well, I would not eat it, but I have tried it out on animals.

Mr. Butler: I move to strike out his answer.

The Court: It may be stricken out.

The Witness: I can't answer your question.

By Mr. Butler:

Q. Do you believe it to be a poisonous substance?

A. A test that I made proved that it was not a poison.

Q. On rabbits? A. Yes.

Q. And you hold that food that is fit for rodents, is fit for humans, do you?

A. Very often, yes; certainly.

Q. And, as a scientist, and a defender of the commercial common sense of the country, you believe that a food that is fit for rodents is fit for humans?

A. I don't believe—

Q. (Interrupting) Do you believe that the standard?

1444 A. We use, of course, these lower animals to make our experiments on. You wouldn't allow us to take men, of course, to feel these things to. Simply have to use the animals in order to make our comparisons.

Q. If decayed meats were thrown to rats, and didn't kill them would that prove to you it was a wholesome food for people?

A. I wouldn't say it would be a wholesome food.

Q. I asked you if it was wholesome, sir?

A. Well, wholesome enters into the question of whether it is poisonous, or not. Now, if you go into whether it is wholesome, from an aesthetic stand point, I can answer it.

Q. Well, what would you say?

A. No, it is not wholesome, from an aesthetic standpoint, because it is no longer flour.

Q. Exhibit 47 is some flour which has been treated by nitric acid. Is that a poisonous substance, in that bottle?

A. I would say that the nitric acid, as I see it, there, is most poisonous, indeed; but it is not flour.

Q. If there was less nitric acid in it, would it be poisonous? If there was half less?

A. That would depend. I presume it would be.

Q. And where it ceased to be poisonous, no man could say, could he? A. Yes.

Q. Well, at what point would it cease to be poisonous?

A. When you would not get any nitric acid, or any nitrite reacting material, above—oh, a few parts in a million.

Q. If the yellow color is produced, at all, would it be poisonous any more?

A. It might not be poisonous, then, so far as poisons go.

Q. Well, not fatally, but poisonous, any more?

A. It might not be even poisonous any more.

Q. Isn't this xanthro protein, resulting from flour and nitric acid combined, a poisonous substance?

A. It might be, in the organs, but nobody has proved
1445 that xanthro protein is a poison—that is, the xanthro protein, excepting some of its derivatives.

Q. You mean it hasn't killed anybody?

A. I don't know of any case.

Q. And until you do know of a case, you shall insist that it is not proved to be a poison, won't you?

A. I would say that the nitric acid in there is a most virulent poison.

Q. Now, if our witnesses have told the truth, that nitric acid is put in this flour, a poison has been imparted to it, hasn't it?

Mr. Scarritt: We object to that, if your Honor please, as being an improper question.

The Court: He may answer, whether the acid makes the poison, or not.

Mr. Scarritt: That is not the question, if your Honor please.

The Court: I understand.

Mr. Scarritt: Well, what about this question?

The Court: I was sustaining you, Judge, unless you talk me out of it.

By Mr. Butler:

Q. If we assume as a fact that the Alsop process, did put nitric acid in this flour, it put a poison in the flour, didn't it?

A. Well, you are assuming it was put in there, but even then, of course, if it were put in, it might be there in such an infinitesimal trace, that no chemical method we have, would disclose it; and then you must remember that nitric acid is found widely distributed throughout the vegetable kingdom, as nitrate. Nitric acid wouldn't exist in there as nitric acid.

Why, that is absurd.

1446 Q. Well, let us assume it does, for the purposes of the fact.

A. Well, you will have to assume that.

Q. Now, you have often been a witness, haven't you?

A. I think I have; yes.

Q. And you know the office of an expert witness is to give his learned, professional opinion upon an assumed state of facts? A. Yes.

Q. Assuming that there is nitric acid put in this flour, at the time it was bleached, was there a poisonous substance added to it?

A. A substance in certain concentration has been added to it, it would be a poison, under those circumstances.

Q. If any of this acid exists in the flour, and was added to it at the time of bleaching, was there a poisonous substance added to it?

A. In sufficient concentration, that would act as a poison, but always remember, sufficient concentration.

Q. If NO₂ is in the flour, now, as such, is there a poison in it?

A. If it is added in sufficient concentration, and is there in sufficient amount, it naturally would be a poison.

Q. If strychnine was added to it, was there a poison added?

A. Yes; in sufficient amounts; yes, sir.

Q. You would answer that the same way?

A. In sufficient amount.

Q. Prussic acid is found extensively in nature, is it not? Is it not generated in nature, in the seed of the almond?

A. I know, but it is always more or less in combination.

Q. Well, I know, but prussic acid exists, like nitric acid? Now, let us assume that prussic acid was generated, and added to this flour. As an expert and scientist and medical man, I ask you if a poisonous substance was added to the flour?

A. A poisonous substance has been added by that, if it is there in sufficient doses to be a poison.

1447 The Court: Now, what do you mean by that?

The Witness: I am going to give you an idea of a poison.

The Court: Well, suppose I dropped a log down on [on] your head; it would kill you. Now, if I dropped a chip on you, have I assaulted you?

The Witness: If you would saw that up into saw-dust it would not have a deleterious effect, no, sir.

The Court: Well, have I assaulted you?

The Witness: No. Now, poison is really a relative term. What may be a poison to one individual, in the food, may be meat and butter and bread, in another. As Shakespeare says, "what is one man's meat is another man's poison". I know people that can't eat strawberries. Some people like meat, others get poisoned from eating meat.

By Mr. Butler:

Q. Is there any substance that is a poison?

A. By itself, inherently?

Q. Yes. A. No. No such poison exists.

Q. So that, no matter what substance be added to the food of the people, you can scientifically answer that, inherently, no poison has been added, can you?

A. Because it is not there in any quantity to be recognized as a poison.

Q. So that, if 1/60th thousandth part of a grain of strychnine be added to each biscuit that was handed to a child, you would swear that there was no poison in it, wouldn't you?

A. If the strychnine was there in small—

The Court: (Interrupting) No, no; just answer the question.

The Witness: Well, what is it—60 thousandths of a grain?

By Mr. Butler:

1448 Q. 1-60th is a dose, and this is one thousandth part of a dose. A. I would.

Q. And as the quantities increased, step by step, you would continue so to swear, until the quantity was such as had been by experimentation demonstrated to produce poisonous results in human beings, wouldn't you?

A. I would have to have enough strychnine in there to at least obtain some minor physiological effect.

Q. You would have to observe it in symptoms, before you would recognize it as a poison, wouldn't you?

A. I would have to recognize some physiological disturbances, or some beneficial result from that, before I would recognize it.

Q. Well, that would be a symptom?

A. A symptom of some kind. Strychnine, you know is a very good tonic. It is an excellent tonic. You might give strychnine for several years, you know, to an individual, and it is very beneficial.

Q. Prussic acid, too? A. Well, I don't know.

Q. Cyanide of potassium?

A. Potassium cyanide is a salt, of course.

Q. Is that a bad poison?

A. Yes. That is a very bad poison, as such.

Q. But, if that was added to flour, by the same test you would say no poison was added, unless it was in such quantities that you could observe symptomatic changes, either of well-being or bad feeling?

A. In the concrete definition of a poison, certainly I would have to stick to it. I couldn't do anything else.

Q. So you hold, no matter what it is, whether it is prussic acid, or cyanide, or strychnine, or nitrites,—no matter what they are, until there is sufficient added to the food that is consumed at a single meal that there may be some physiological effect observed, you hold that no poison has been added?

A. Oh, not at a single meal. It might be a dozen meals.

Q. All right.

A. Or the eating of foods constantly for a year. I would draw my opinion on that. It wouldn't be for a single meal.

1449 meal.

Q. Well, how long?

A. It would all depend on the amount that was being taken, and the resistance, and a great many other questions would have to be considered, before you could arrive at it, but I assure you, I would be away on the safe side, always.

Q. Try it on the rabbit, first?

A. I would be away on the safe side of the test. It would have to be done so small—so that you couldn't weigh it, or estimate it, or recognize it, and if you didn't have this Griess test they never would have discovered anything in the flour.

Q. That has been a great misfortune, hasn't it?

A. No, not at all.

Q. It brought on all of this bleaching litigation?

A. Not at all. You let one of these others go to the first and third decimal point, but this substance goes to the fourth, fifth and sixth decimal point, and still it is a deathly poison.

Q. Now, have you much feeling about this?

A. No, only scientific.

Q. I notice you are very scientific. A. Thank you.

Q. Now, let us see about this bleaching. You say the bread is not impaired by the bleaching.

A. I am certain about it.

Q. It is not bettered by the bleaching?

A. The color is bettered.

Q. Except as to color? A. The color is bettered.

Q. There is no difference in the odor?

A. Absolutely none.

Q. There is no difference in the flavor?

A. Absolutely none.

Q. There is no difference in the loaf volume?

A. Not any more than what you would find in natural variation between two same flours.

Q. There is no damage done of any kind?

A. Not as I have examined commercially bleached flour.

1450 Q. The patent isn't lengthened by the bleaching?

A. Well, I told you I couldn't tell you, really, what a patent is.

Q. It couldn't be used to deceive any person, you think?

A. Oh, no; it can't be; no, sir.

Q. And you find that only one part in the million is what you would call a good, honest average, of nitrite reacting material?

A. I would call that an average of what I have found in these several years I have examined bleached flour.

Q. And four parts in the unbleached flour?

A. I have found that it is 4 parts in the million.

Q. And one part is your maximum in the bleached?

A. No, not at all. Oh, no. Not that.

Q. What was the maximum?

A. I have seen it go I think as high as three or four points, but very rarely. That was early in the bleaching.

Q. How much air would have to be robbed of its nitrite reacting material, to put four parts of nitrite reacting material, computed as nitrogen, in a kilogram of flour? I have that figured, to save you the trouble of computation.

A. You never told me how much there was in the air.

Q. Well, you know how much there is in the air, don't you?

A. I should say not. Doctor Marshall is the only man ever figured that out.

Q. Well, let us say there is .01 to one million cubic feet of air. A. .01 what?

Q. Part. A. Part what?

Q. NO2.

A. Yes, but what is that .01 part? Is that .01 part of a cubic foot.

Q. Of a milogram. .01 part of a milogram, to one million cubic feet of air. Now, assume that to be the fact.

A. I think you have got mixed up on that.

1451 Q. Well, assume there is one part to a billion, in the air.

A. One part of what? What is the one part? A billion cubic feet?

Q. No, leave out the cubic feet. Just one to one billion. How much air would it require to get four parts.

A. You haven't given me the figures yet. I don't know what one part of a billion is—whether grams, or pounds, or ounces, or what it is.

Q. Well, call it cubic foot. One cubic foot of nitrogen peroxide gas, to a billion cubic feet of air, or call it grams, or anything else you like, or units of any kind. Now, how much would you have to have to bleach that flour, so as to put four parts in it?

A. That is peroxide, you are figuring this as, Mr. Butler?

Q. Yes. A. That is, a kilogram.

Q. I don't care whether you make it a kilogram, or what.

A. It is a kilogram of flour?

Q. Yes, a kilogram of flour. The same four parts you found in the unbleached flour, and reduced to nitrogen, or nitrite reacting material, computed as nitrogen. I want to find out how much air you would have to agitate to that handful of flour. I will not trouble you to figure it longer. You may hand me the figure in the morning, if you will. The reporter will give you the question. Does the nitrite reacting material grow less, in bleached flour, with the lapse of time—flour that has been bleached, we will say 60 days? Well you get as much, by this Griess reagent test, as you would if you took it at the time it was bleached?

A. I really couldn't answer that, because I haven't examined flour 60 days after bleaching.

Q. Haven't you examined any of the seized flour lately?

A. Oh, I have examined the seized flour; yes.

Q. But you haven't compared it with what it was?

A. I haven't compared it with what it was; no.

Q. Doesn't a little heat drive out all of this stuff?

A. If you have heat, to the boiling point of water, it drives out this compound.

1452 Q. Haven't you and your associate, Prof. Teller, gone through elaborate experiments to show that a little heat, some goes off, and more heat, more goes off, and over night it all goes off?

A. That is, this compound I have told you about works that way.

Q. This nitrite reacting material?

A. This nitrite reacting material; yes. That is not peroxide of nitrogen.

Q. That is what I mean. That goes off? A. Yes.

Q. In what form does it go off?

A. Well, I am not absolutely certain whether it goes off partly as a nitrocite, or whether some of it splits off as N2O3.

Q. Doesn't the air keep putting it in all the time?

A. The air will keep putting it in all the time, if it can get at it.

Q. And if it goes out of one flour into the air, then, in the air, it will come back into the other flour, won't it?

A. I am referring, now, to the oxide of nitrogen. Certainly will. You can't keep it out, because this coloring matter has an affinity for it.

Q. A bleached flour, then will also purify and bleach the other flour that is sitting near it?

A. Oh, no; no; nothing of the kind. Take it up from the air. No, not if that is what you mean; no.

Q. But you have proved that a little heat drives it off in the air, haven't you?

A. It does, quite a substantial heat.

Q. And you have also proved it grows less, as time goes on, haven't you?

A. Well, I don't know whether we have or not.

Q. And you have also proved that, right in your own kitchen, and bed room, wherever you are, and out in the open air, that the air puts it into the flour?

A. There is no question about that.

Q. But you say the giving off of the stuff off the bleached flour, would not blast the wholesome brother that was nearby,—the unbleached flour?

A. For the simple reason it is there as a new chemical.

Q. Now, if Professor Hulett tells the jury that this flour taken out of this bag, had NO2 in it, and gave it off to the air, according to this flask illustration that was shown here,—if he tells the jury about that—You remember it, don't you?

A. I do; very well.

Q. Then you would say, would you not, that it liberated NO2 in the air, and that there was an equilibrium all the time?

A. No, I wouldn't say that, at all. Part of this compound, as Prof. Hulett no doubt will agree with me, is volatile. These nitrocites are volatile, and what he got there was due to the nitrocites, and not the peroxide of nitrogen, at all.

Q. Well, let us assume it was peroxide. Let us assume that.

A. You mean oxide of nitrogen?

Q. Nitrogen peroxide. A. All right.

Q. That is, assume that, and that it has given it off, in the flask, and by the pump, when he pumps it out. Let us assume that to be true. Then the air would be contaminated by it, wouldn't it?

A. The air would contain peroxide of nitrogen; yes.

Q. And that added peroxide of nitrogen would contaminate the unbleached flour by it, wouldn't it?

A. Well, it would be the peroxide of nitrogen, as you express it, of course going into that flour.

Q. So, if you drive it off as peroxide of nitrogen, and put it in the air, it will contaminate the flour, won't it?

A. You don't drive it off. Of course, there is none in the flour to drive off.

Q. Do you use bleached flour at home?

A. All of it. I always want to have it; yes, sir.

Q. That is the reason you had the unbleached exposed in your kitchen last January to February?

A. No. I used that against the Commonwealth of 1454 Pennsylvania, in that starch case, to prove how easy this starch would take up oxide of nitrogen from the air, and they will take it up.

Q. You were down there, fighting the Commonwealth of Pennsylvania, so that this man with the corn starch, such as you brought in here, that had these nitrites in it, might be shown to be innocent, because the corn starch would take up the stuff from the air?

A. I was down there with Doctor Marshall, to show how the nitrites got into the starch.

Q. Now, Doctor Marshall couldn't get any on his corn starch that was acid, could he?

A. No, because the acid starch don't contain any bases, the same as the flour. The color is the base in the flour.

Q. Wheat flour is acid, normally, isn't it?

A. Yes. The yellow coloring matter is the base, the same as the alkali is in this starch.

Q. Now, to a layman, of course, you are far superior to us, and I want you to go rather gently with me, here, and not drown me quick. Now, you agree that, unless you make the starch alkali, that it would not take in nitrites from the air, don't you? A. Yes, sir; that is true.

Q. And you agree that, if it was acid, it would have none at all?

A. No, because there is nothing there to combine with the nitrites, whereas, in the flour, the yellow coloring matter is the same as the alkali in the starch, and you can't get away from that. It is bound to get in there.

Q. But you say it will go to the acid flour, while it won't go to the acid starch?

A. Because of the yellow coloring matter; yes, sir.

Q. Now, I am not asking you why, but that is the fact?

A. Oh, that is the fact, yes.

Q. So we are to understand this, about it, that you can't get any into starch—corn starch that is acid, from the air?

1455 A. Well, very little, if any, that the acid corn starch takes up.

Q. But wheat flour, being acid, because of the strong affinity of the coloring matter in the oil for nitrous acid and nitric acid, they immediately combine?

A. No. Nitrous and nitric acid will not bleach flour, but N2O3. Nitrous and nitric acid will not bleach flour.

Q. Nitric acid will not bleach flour? A. No, sir.

Q. But you can use nitric acid to bleach flour, can't you?

A. You use the N2O3.

Q. Now, in this process where they feed the iron into the nitric acid jar,—that is, the one that the Alsop patent people had litigation with, the Naylor-Girard,—that is nitric acid?

A. It is nitric acid, but it isn't nitric acid that does the bleaching. It is the N2O3 that does it.

Q. Does it give off NO2?

A. It gives off some NO2, too, but it is largely N2O3.

Q. Now, if you pour nitric acid onto flour, it will give off this NO2 gas, or N2O3?

A. When you pour nitric acid on there, itself, it will not bleach, and when the nitric acid decomposes, then, of course, that gas—

Q. (Interrupting) Well, that is another thing, just like these nitrites? A. I know, but you would ruin your flour.

Q. But that is the distinction between nitrites, and nitrite reacting material, over again, isn't it? Is it merely verbal?

A. No, the nitric reacting material is a material which is not a nitrite, but, when the Griess reagent acts upon this compound, it makes a nitrite out of it.

Q. I see. That is what you call the fine points of chemistry. Now, you made some digestion experiments on bleached and unbleached flour?

A. I found that where the flour was really overbleached,
1456 that it digested quicker than where it was commercially or normally bleached.

Q. Was that a good thing for the flour?

A. That is a good thing for flour, and that is because it is recognized that mineral acids are always added to food, in the first process of digestion. We have it here every day.

Q. Nitric and hydrochloric?

A. Hydrochloric acid is one, nitric acid.

Q. Nitric acid customarily used by physicians to promote digestion?

A. Oh, yes; very extensively. Nitric acid, and also nitrohydrochloric acid. Nitric acid is often given in doses.

Q. If you put nitric acid and hydrochloric acid together, you will get aqua regia, that will dissolve gold, won't you?

A. If you get it there in concentrated quantity; yes. You can draw terrible pictures of these things if you want to go to the extreme.

Q. Do you believe that this digestion test which you made out of that flour was not injured?

A. Yes, sir; because I went at it thoroughly, for a purpose, I wanted to know.

Q. When did you do that?

A. Oh, I have done that ever since we first started, I should say probably back in 1905 or 1906.

Q. And you had this all in mind when you were down at Washington talking to the Secretary?

A. Oh, yes; I knew what I was talking about.

Q. Did you say this to him: "I wish to say that I am very skeptical about digestion experiments made artificially." Did you use that language there, at that hearing?

A. Made artificially?

Q. Yes.

A. I may have said it, in that way; I don't know.

Q. You might have been joking with the Secretary down there, a little?

A. Oh, I think artificial digestion experiments are very excellent, when properly carried out, but they have got to be carried out right.

Q. No, let us see about that. Down at Washington, the party on the other side had disclosed the results of his digestion experiments hadn't he?

A. I don't think he had, at all. He did nothing of the kind.

Mr. Elliott: Now, Mr. Butler, you objected very strenuously to my reading to your witness, and I gave him the book. Now, I think if you are going to ask about these things, you should show him the record.

Mr. Butler: But I want to get the situation, now.

Mr. Scarritt: I object to it, because it is not in the issues of this case.

The Court: The witness has said he made digestion experiments. Now, if he has said, upon some other occasion, that they are not to be relied upon, isn't that competent?

Mr. Scarritt: Well, if he will ask him that.

Mr. Butler: I am asking him if he did not say so. He can affirm or deny it. I am informed he did. That is all. There is a transcript here.

Mr. Scarritt: Show him the record.

By Mr. Butler:

Q. Now, at Washington, you took part in the hearing, in favor of the bleachers, didn't you?

A. Not in the bleachers. In favor of the millers.

Q. The millers who bleached?

A. That was away back in 1908, in November, wasn't it?

Q. The order was made the 1st of January, 1909, about. You were there in favor of the millers who bleached?

A. Yes.

1458 Q. At that hearing it was claimed, was it not, that digestion experiments made artificially in this country and abroad, by noted scientists—

A. (Interrupting) Well, nobody had made them abroad.

Q. Haliburton?

A. I should say not. Haliburton didn't make them, at that time; at least they had not been published. They were not common knowledge.

Q. Not published in the transcript of this case?

A. What case?

Q. The case that Doctor Shepard was there, and testified.

A. I don't know whether that case was tried at that time, or after. And that wouldn't be common knowledge, not even to a scientist.

Q. At any rate, it was claimed, there, that eminent scientists had established that the bleaching of flour impaired its digestibility, when tested by these artificial digestion experiments, was it not, and among those who claimed that was Prof. Shepard, who testified here in this Court?

A. No, Prof. Shepard did not testify on that. He simply said the enzymes were affected, by certain things.

Q. And didn't he say that destroyed digestibility?

A. Well, I know; he assumed that, if the enzymes were affected.

Q. Just answer my question. Was it not claimed, there, by those who were opposed to the bleaching, that digestion was impaired?

A. I do not know of anyone that made any experiment, unless it was Prof. Ladd.

The Court: He asked you if it was claimed.

By Mr. Butler:

Q. That was the claim? That was the talk?

A. Oh yes; that was the talk. That has been the talk right along.

Q. And did you make this statement in these words: "The tests we have made with flours, bleached and unbleached, in the raw state, we have found no difference, whatever, in the digestion of these two flours,—absolutely no difference. I wish to say that I am very skeptical about digestion experiments made artificially." Did you not say that?

A. I don't know whether I said that, or not. I might have said that, but if I said that last, I would know why I said that.

Q. Oh, yes,—of course, but I don't care why you said it.

A. I don't know as I said it. My memory can't go back, Mr. Butler, two and a half years. Is that a certified copy?

Q. Now, but your associates, here, have a transcript of this—haven't you, Mr. Elliott?

Mr. Elliott: No.

Mr. Butler: Well, what did you do with it? You had one at Philadelphia.

Mr. Elliott: Well, have I got to carry all my papers around?

Mr. Butler: Can't you recognize this?

Mr. Elliott: I don't know a word about it. I haven't looked at it in years.

The Court: Well, it is not a question of whether it is certified, or not, it is whether this witness so stated.

Mr. Scarritt: And that is for him to say.

The Court: That is for him to say, in the first instance, and then it is for other witnesses to say, in rebuttal.

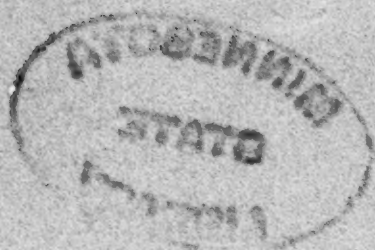
The Witness: I don't remember whether I said that, and I wouldn't recognize it.

Mr. Butler: Well, I have a transcript here that was furnished me by the department of agriculture.

Mr. Helm: You haven't even offered that to the witness.

Mr. Butler: Well, I will offer this to the witness. He says the stomach is a peculiar organ; that it is like a churn, and the more you stir, the faster it goes. That is all in there, but he didn't say anything different from that, here.

Thereupon Court adjourned to 10 o'clock a. m. Tuesd.,
1460 June 21, 1910.



Morning Session.

Kansas City, Missouri, Tuesday, June 21, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Dr. John Wesener, in continuation of his cross-examination, further testified as follows:

By Mr. Butler:

Q. How many samples of unbleached flour have you analyzed since bleaching commenced by the Alsop process?

A. I couldn't say the exact number; I would say between one and three thousand.

Q. One to three thousand?

A. Yes, in round numbers.

Q. Of unbleached flour?

A. Unbleached flour.

Q. Would three thousand be conservative, or will we make it two? A. Well, two would be conservative.

Q. What is the expense of having a sample of flour 1461 examined by the Columbus Laboratory?

Judge Scarritt: We object to that as immaterial and irrelevant.

The Court: You may answer, not go into the details.

To which ruling of the court claimant then and there duly excepted.

Q. No, it is either one dollar or ten or forty or a hundred; one word will answer.

A. With reference to the value of the flour as flour, you mean.

Q. I wanted to find out what you charge for examining each sample of the fifteen thousand samples of bleached flour you examined since bleaching commenced.

Judge Scarritt: I renew the objection.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. We charge two dollars and a half a sample.

Q. Speak a little louder?

A. Two dollars and a half a sample.

Q. In your analysis of the patent flour how much ash do you find?

A. That depends on—

Q. In the soft wheats of the South, the soft winter wheats of Missouri, Kentucky, Southern Illinois, and that territory, the whitest flour?

A. Well, our standard is .35 per cent, our standard.

Q. .35 of one cent is what you find? A. Yes.

Q. You have established a patent standard?

A. Which we change every year.

Q. Oh, of course.

A. We change every year when the new wheat crop comes in.

1462 Q. In the spring wheats, the spring hard wheats, what is your standard ash for patent flour?

A. Well, from .42 to .45.

Q. Yes, and the winter hard?

A. From .40 to about .42.

Q. This flour that was seized did you examine—did you make an ash determination? A. Yes.

Q. How much did you get? A. .46

Q. .46. Now, assume that Miss Wessling and the others were right and got .57, is it a patent flour?

A. Well, it is not a high grade patent, according to our own standard, it may be a patent the way that method turns it out.

Q. That is, if it is true that everything is a patent which a miller calls a patent, then this seized flour is a patent?

A. Well, of course, the way you use the word "patent" it is absolutely meaningless, absolutely meaningless.

Q. Well, according to the standard as fixed by your own best judgment, isn't it?

A. We say that a flour that is properly cleaned and will mill, and nicely bolted, and so on, should have only so much ash from a given weight.

By the Court:

Q. Let me ask you, do you mean "patent" is meaningless or indefinite?

A. I mean it is meaningless and also indefinite, and I can explain that to you fully that is, if you wish.

The Court: Well, you have gone over that; I didn't think you meant to use the word "meaningless".

A. Meaningless because it refers to the patented roller system.

The Court: That is forty odd years old.

By Mr. Butler:

Q. In the Dixie Miller of October, 1907, at page 36, you are reported to have said in substance as follows: "Now, should the miller be prevented from bleaching flour when he

can give the consumer and the baker and everyone a better flour, improve the flour, age it rapidly, standardize it better, it contains more nutriments, and there is more gluten present, and makes a larger loaf, increases absorption." Did you so state in substance and effect?

A. I don't know whether I stated that; I may have stated that.

Q. Those are your views?

A. Those are my views; those are my views; yes, sir.

Q. In the Dixie Miller of October, 1907, at page 36 you are reported to have said: "We have examined the gluten very minutely. We have never found any nitrite in combination with the gluten. We have never found any variation in the gluten, and we have never found any variation as yet in the oil; the only change that we have found is the coloring matter of the flour." Did you so state?

[Q] I don't know whether I did or not, but that would be true.

Q. Those are your views? A. Yes, sir.

Q. The American Miller of 1909, at page 885, reports you as saying: "Not all of the flour contained in the grain can be in the form of middlings of such a character that they can be sufficiently purified to make a better grade of flour. The remaining portion is mixed with fine fragments of bran, and even the germ, which is the embryo of the kernel. This portion of the flour is generally named clear grade flour; it is darker in color than the patent flour, and when separated in this way is inferior for bread making purposes because of the impurities it contains. When the clear flour and the patent flour are united in one, they constitute a high grade flour much more superior to the flour made by the old stone mill process, has more of everything, its same general character but from a good and economic character the clear flour is superior to the patent flour because it contains more protein, more of the fat and less of the starch. The same is true of the straight grade flour for it contains the excess of these ingredients more than in clear, and at the same time objectionable qualities of the clear are largely removed because the impurities more diluted; except as regards color, more beneficial than injurious."

Did you so state?

1464 A. In what paper?

Q. The American Miller of 1909, page 885?

A. I don't know anything about that, but I did state it in the Industrial Journal of Engineering and Chemistry published by the American Chemical Society; it originally was in that Scientific Journal.

Q. Those are your views? A. They are.

Q. The Dixie Miller of October, 1907, at page 736, reports you as having stated as follows: "There cannot be any deception practiced taking the law as it reads unless you substitute an inferior for a superior article. I will just explain to you that the reverse is true, that you are substituting a superior article for an inferior article. The old-fashioned patent flour was the white portion of the wheat. The starchy portion that did not contain the food value that is contained in the germ, colored middlings or the more colored middlings, it does not contain the food value or the strength. Now, by grinding up these middlings and purifying them and simply taking out the color, you are making a better flour than the old-fashioned patent, better for the baker, better for the miller, better for the consumer." Did you so state?

A. I don't know whether I said that in that particular publication but those views are mine.

Q. Those views are yours?

A. I approve of them. People are getting better flour and cheaper flour.

Q. I am asking if these are your views.

Judge Scarritt: Let him explain if he wants to explain.

Mr. Butler: He explained yesterday that he did not change it. We will leave it that way until you get him.

Judge Scarritt: Do you desire to explain?

The Court: That is a very simple and elementary rule. This is equivalent to asking the witness if he upon another occasion stated so and so. If he admits it that ends it; 1465 if he denies it, why then they have a right to bring their proof forward.

Judge Scarritt: Certainly.

The Court: In other words, it is a foundation for the impeachment. If he admits it that ends it. If he denies it they have a right to show they said it.

Judge Scarritt: He can explain it if it is an impeaching question.

The Court: Yes.

By Mr. Butler (resuming):

Q. The Dixie Miller of October, 1907, at page 736 reports you to have said as follows: "The thing (meaning bleaching) is either right or it is wrong; it cannot be half way. In this particular we have never found anything wrong. We have found that the bread was, if anything, increased in volume; it gave a larger loaf; it increased the absorption and benefited

the baker thereby. From a food standpoint it is better. Why, because you put in a little bit of the second patent, a longer patent, that is a better part of the wheat kernel, why shouldn't it go in? It makes you a larger loaf, makes you more loaf and gives the consumer more for his money. There is no reason why this should not go in provided it is equal and superior to the patent." Did you so state?

A. I don't remember of making that statement in the Dixie Miller, but that is, as a whole, is nearly correct.

Q. That expresses your views?

A. Nearly so, not entirely so. I would like to explain why it does not entirely meet my views.

Q. There are others of a similar nature that I call to your attention, and maybe your counsel will give you an opportunity to explain. In the American Miller of 1909 at page 974 did you state as follows: "The average value which in our report is based upon the color of the flour, the character of the 1466 bread, the amount of the bread and the size of the loaf, was a little higher for the bleached flour than the unbleached, because the color of the flour and the color and quality of the bread was improved." Did you so state?

A. Well, I don't know whether I stated; possibly my associate Professor Tullar did.

Q. Are those your views? A. They are my views.

Q. The Dixie Miller of October, 1907, at page 736 reports you as saying: "I know a miller in Ohio who makes a hundred per cent patent and it analyzes a hundred per cent patent, and he sells it for 100 per cent patent; he has a right to sell it for 100 per cent patent because it is 100 per cent patent." Did you so state? A. I stated that.

Q. You stated that before the Bakers' Association?

A. And that is absolutely true, he is doing that, but according to your rule you call that a straight.

Q. And in the Bakers' Helper reporting your speech, which I have not in my hand at this moment, you state: "Hats off to the miller who can make a 100 per cent patent that will analyze a hundred per cent patent" didn't you?

A. I say that to any man that will get all the flour out of his wheat.

Q. You say that now to the jury don't you?

A. It is a pretty good thing for the consumer and the people; it gives us cheaper bread.

Q. And if it has .57 of one per cent ash as the seized flour has, you still say "Hats off to that kind of a patent", don't you?

A. No, I say that miller ought to be taught to make probably a little better flour, to get out more of the impurities; it doesn't mean that the flour is bad.

Q. To convict him of misbranding would help to teach him?

A. I don't know what you mean by misbranding in this case.

Judge Scarritt: We object to that.

1467 The Court sustained the objection.

Q. The Operative Miller of 1907 at page 432 reports you as saying: "The knowledge possessed by the average flour jobber and user without analysis in a chemical and technical sense is of little value. The opinion of any baker unless he has had scientific and technical training is hardly a sound basis for a scientific conclusion." Did you so state?

A. I did, and that is true too about these gentlemen.

Q. So a gentleman like Mr. Freeman would not appeal to you as having had much sense about this matter?

A. I don't know that, I don't know who you refer to.

Counsel for Claimant objected.

Q. The Operative Miller of 1907, at page 432 reports you as saying: "Bakers cannot detect the slightest difference in bleached and unbleached flour." Did you so state?

A. I did so state, and when I addressed the National Association of Master Bakers, 250 present, and not a one there knew they had been using bleached flour and they had been using it for three years.

Q. So they were deceived to that extent by it, weren't they?

A. Not at all.

Q. They didn't know it but they were not deceived, well we won't go into the psychology of it. At the hearing before the Secretary of Agriculture, the transcript furnished to me by the Department represents you as having said as follows: "The more I go into the subject of bleached flour the more interesting it becomes and the more convinced I am that it is not only a legitimate process, not only for the miller but also for the consumer. It is a very fine advance in the art of milling." Did you so state?

A. I did, and I meant every word in it too.

Q. The American Miller of 1906, at page 997, refers to an article which you wrote for the Bakers' Review, and represents you as saying as follows: "He" (meaning you) states
1468 that the color is a very valuable index to the grade of the flour when in the natural condition." Did you so state? A. I would have to see that.

Q. Are those your views?

A. The color is an indication of the grade and the way that flour has been—or that wheat has been milled, but the

color is only one factor in grading the flour—wait till I finish my answer, and—

Q. Just a moment. A. I have not finished my answer.

Mr. Butler: I move to strike out his answer as not responsive to the question.

The Court: Yes, he has asked you the question, and I repeat, that this is for the purpose of impeachment. Now you can affirm or deny. If you affirm, that ends it, the Government has a right to bring forward witnesses.

Q. I will restate the question so there will be no doubt about it, if you will permit me, and give you time to make your objection.

Judge Scarritt: All right.

Q. Is this statement, to-wit, that the color is a very valuable index of the grade of the flour when in a natural condition, a fair representation of your views?

Mr. Scarritt: Now that is not an impeaching question; therefore he has a right to explain what his views are.

The Court: Certainly, he was asked if he stated that before the Secretary of Agriculture.

Judge Scarritt: Not in this last question.

Mr. Butler: As stated in the article written for the Bakers Review.

The Court: Of course, I was mistaken about it.

Judge Scarritt: I would suggest that he answer that question yes if he remembers it so, or no, if he is satisfied that it is not so, but if he is indefinite about it, he can explain what his views really are.

The Court: He has asked him to state whether or not those are his views. Now he can say they are or they are not. Answer.

To which ruling of the court claimant then and there duly excepted.

A. I would want to have what precedes that.

The Court: No, he asked you if those are your views.

A. I have to know what precedes and what follows that; it may be my views as far as that particular statement goes, but that view may not be the right view when [when] what comes before or after.

The Court: That answer is sufficient; that enables the Government now to bring the proof, he says no, that is equivalent to a denial.

Judge Scarritt: I would like to except to that, being equivalent to a denial.

The Court: What I mean by that, that will allow the Government to bring forward the proof that he did say that.

By Mr. Butler: (resuming)

Q. As printed on page 252 of the transcript you are represented as saying the following: "There is virtually no difference between the bread making qualities of bleached flour and that of the unbleached flour. It is true that if you have flour made from new wheat and you are bleaching it, you season that flour and you put it in a condition so that it can be put on the market immediately, whereas if it is not bleached you are liable to have more or less trouble if you send it out on the market because the moisture of that unbleached flour still contains may be the cause of mustiness or mold because the fungi and mold grow very rapidly if you give them the right degree of moisture, whereas the aeration process helps remove some moisture, dries out the flour, it removes the moisture to the extent of .14 of one per cent." And the 1470 transcript represents Dr. Dunlap as asking you: "Out of a total of how much?" And represents you as answering about 12 per cent; and Dr. Dunlap is saying: "And that is sufficient to make a difference between that flour in which fungi would occur and one that would not produce them?" And represents you as answering: "Not that particular evaporation, but it will continue evaporating after it goes into the sacks." Did you so state?

A. I think I nearly stated it in just about that way, yes.

Q. Those are your views? A. Yes.

Q. Flour treated by nitrogen peroxide gas will not continue evaporating after it goes into the sack?

A. It will continue evaporating, it will dry out but this aeration is not due to the peroxide of nitrogen; that is due to good air; that takes out the moisture and immediately conditions it for the market in that way which of course means cheaper flour and cheaper bread.

Q. Larger volume and better for consumer and better for baker?

A. Well, the larger volume might not always take place but it will be as large and even larger than the unbleached flour of fresh milled wheat, it would be larger.

Q. How about corrosive sublimate, would that also destroy the mold and fungi if you put in enough corrosive sublimate into the flour?

Judge Scarritt: We object to that. There is no contention that there is any corrosive sublimate in this flour; we object to it for that reason, not a proper question on cross-examination.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. Why, corrosive sublimate will stop the growth of mold, but peroxide of nitrogen is excellent food for mold to grow on, peroxide of nitrogen, it is excellent food.

Q. Would carbolic acid destroy the fungi and mold?

Same objection.

The Court: He may answer.

1471 To which ruling of the court claimant then and there duly excepted.

A. Certainly it would.

Q. Would embalming fluid ordinarily used by undertakers?

Same objection.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I think it would, yes, but peroxide don't stop molds, they grow beautifully on that.

Q. If peroxide is used to kill the vermin, the peroxide which is made by the Alsop process is used to kill vermin, the Mediterranean moth and other things of that sort, about a mill, you think that vermin in flour would thrive on it and would the nitrites of it be necessary to life?

A. Gas as made by the Alsop process would not kill any vermin.

Q. You tried that on them, have you?

A. I have not tried it, but I know from the strength present—

Q. Oh, you know it?

A. It would not have any effect on them.

Q. You know that? So you know that Mr. Dennison who does use it only for the killing of vermin was not telling the truth?

A. I did not recognize that he used it for that purpose—

Counsel for claimant objected.

The Court: That is objectionable.

Q. The American Miller, at page 886, represents you as saying: "The coloring matter of the flour is the one material that shows the great avidity for uniting of the gases which are used in bleaching. But the coloring matter is in such case and the amount required for the purpose of bleaching the flour is very minute. If an excess of the gas is used it will eventually combine with the other substances, primarily with the gluten, and finally with the oil until the flour is overbleached and ruined that action on these constituents is sufficient to be detected by chemical or physical property." Did you so state?

A. I recognize stating that in the Industrial Chemical Journal.

Q. But it represents your views, does it?

A. Oh yes, yes sir.

Q. That is all we care about.

A. Well, what you are reading is always a copy of my original article which is published in the scientific paper, it is copied by these different journals; I did not publish in the trade journals.

Q. At Washington before the Secretary at the hearing, did you say as represented by the transcript at page 246 as follows: "The yeast and also the process of preparing the bread removes the nitrites."

Judge Scarritt: Now, if your Honor please, we object to that and all similar questions, and to those that have gone before of the same nature, for the reason that they are not different from what the witness has already stated his views were.

Mr. Butler: I am glad you made that point, because I want to remind you that this witness took his solemn oath in questions framed to elicit the answer, by Mr. Elliott, that the flour or the bread did not contain nitrites.

Judge Scarritt: That is what he says there.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

(Question read.)

A. I said that at that time, because I thought they were nitrites, but I know now they are not nitrites but act like nitrites.

Q. Did you further say on that occasion: "There is an exception to that particular statement in so far as once in a while some of the bread contains minor numbers of nitrites but

they are [infinitesimal] they can not be grasped by the human mind; the highest amount we have found is .25 of one part per million nitrite nitrogen." Did you so state?

A. I did not state that last, no, because I don't understand what you mean.

Q. .25 of one part per million? A. Oh yes, .25 parts.

Q. That is .25 parts is as much as you have had?

A. At that time in 1908 about as much as I would find once in a while in bread of this nitrite reacting material.

Q. Now, how much is in the air, that the human mind can not grasp, what is in the bread, how much is in the air now?

A. I don't know, Dr. Marshall is the only man made those tests.

Q. You have not tested that at Kansas City since you came here? A. No, I have not tested that.

Q. We will come to that a little later. If there was one part in the billion in the air, could the human mind grasp it?

A. Well, I think you could grasp that just as much as the twenty-five ten millionth of one per cent in bread.

Q. If there was one part in the million, and you told us the truth when you say that flour in your room for 18 hours took a recoverable nitrite reacting material to the extent of 1.8; do you know how many cubic feet of air would have to pass through a kilogram of flour and give to it all of this nitrite making material in 18 hours to produce that?

A. I never made that statement.

Q. No. A. I never made that statement.

Q. Yes. A. Yesterday.

Q. But what was the statement, how much in your room did you get in 18 hours then?

A. I have not assumed that there is; I said that was 18 hours room exposure, but I never said it took up 1.8 parts in the million.

Q. Well, you said you did find four parts per million in your kitchen? A. I did say that, yes, sir.

1474 Q. Now by one part to the million how much air would have to be passed through that flour?

A. You mean the same that you gave me, that problem recited one billion cubic feet to one, that is one cubic foot to one billion cubic feet.

Q. Assume a kilogram of flour, say, how much would it take?

A. Figure as NO₂, 4 parts of a kilogram of flour, and figure that.

Q. But you did not figure it as NO₂, four parts in a kilogram of flour, you gave that to us in terms of nitrogen yesterday?

A. But I know what you gave me.

Q. I withdraw the question then.

A. That is what I am talking about.

Q. And from my investigation, see if I can't repeat it, if it takes 25 cubic centimeters of NO₂ to bleach the seized flour so as to produce 1.18 nitrite reacting material, computed as nitrogen, then to produce four parts of nitrite nitrogen, it would take 55½ cubic centimeters of NO₂ to bleach the kilogram of flour, a little more than twice as much as that contained in 51. Now if there was one part to the billion in air, would it not take to effect the bleaching of the kilogram of that flour in your kitchen all of the nitrite producing material in one million three hundred thousand cubic feet of air?

A. Well, I would say I would have to go over those figures very carefully, but that does not at all correspond with the problem you gave me, and I think the one you gave me yesterday would be the one that we ought to confine it to, I would not attempt to answer it now.

Q. And we will not wait.

A. I will take those figures though, if you want me to, and report on them this afternoon.

Q. If the air at Kansas City is found to contain 9½ milligrams per million cubic feet, then it will take the NO₂ or equivalent in two million six hundred thousand cubic feet of air to hold four parts per million of nitrite reacting material computed as nitrite in a kilogram of flour, is that not true?

A. I don't know, I would have to study those figures.

1475 Q. Well, all right, you may study them hereafter?

A. My figures don't correspond with yours either with the question you gave me, but I am ready to report on that right now if you want to.

Q. Do you think it would be possible in 18 hours time to put—in your bed room—to put a quarter or a half a million cubic feet of air through a kilogram of flour?

A. I should say not.

Q. No, blow the hotel down, wouldn't it, there would be a cyclone there, wouldn't it?

A. I don't know what would happen.

Q. In the patent, "Government's Exhibit 1" it is stated among other things as follows: "The second analysis of the flour was conducted by the Henry Professor of Physics at Princeton University, and his assistant Professor, and it was found that while the untreated flour contained 54/1000 of a gram of nitrogen to one gram of flour, the treated flour contained 75,1000 of nitrogen to one gram of flour" In your analysis of bleached flours did you ever get any such result?

A. Most certainly not.

Q. That statement can not be true chemically, can it?

A. It is not true, sir.

Q. In order to do that this flour would have to be treated with sixty-six thousand parts of NO₂, would it not, per gram?

A. I don't know, I would have to go over that.

Q. Never figured it out, I suppose you could do that for us?

A. I could.

Q. Is the statement in this patent to the effect that it increases the water true, in flour?

A. I should say not.

Q. Is it true that it increases the food value, the nutritive value? A. No, it does not.

Q. It does not. Is it true when it says it bleaches it, that NO₂ bleaches it?

A. No, I don't think NO₂ bleaches it.

Q. Not true in that regard? A. No, sir.

Q. Is it true when it says that process bleaches it?

1476 A. The process bleaches it, yes.

Q. Is it true when it says gases bleaches it?

A. The gases I think generate—

Q. The gases generated by the flaming arc bleaches it, does it?

A. Yes, some gas generated by the flaming arc bleaches it.

Q. Is it true when it says it bleaches it dead white?

A. Well, I don't know what you mean by dead white.

Q. You couldn't tell what dead white means?

A. No, I seen so many dead people, I don't know what dead white is.

Q. You don't know what dead white is?

A. I know what chalky white is; I don't know what dead white means, because I seen too many different colors in dead people.

Q. I see. Did you know Mr. Alsop?

A. Never met him.

Q. You know Mr. Mitchell?

A. Yes, sir, very well.

Q. You didn't have anything to do with preparing these patent specifications?

A. No, I didn't know anything about that at that time at all.

Q. Is there any ammonia gas in air? A. Yes, sir.

Q. Is its formula HN₃?

A. If it exists as a gas it would be.

Q. Is it three times as great in volume or about that, as the NO₂ in the air?

A. I couldn't say as to that.

Q. Assume that it is then and answer this question, whether or not these gases coming into contact with the water will form nitrite of ammonia and nitrate of ammonia in equal chemical parts?

A. That would be the immediate chemistry.

Q. Yes, would nitrite of ammonia bleach flour?

A. Nitrite of ammonia?

Q. Yes.

A. I have never tried it, but I don't believe it will.

Q. Would nitrate of ammonia bleach flour?

A. Never tried, no, that would not bleach it at all.

Q. In a barrel of flour there is about 20 pounds of water, isn't there? A. About that, yes.

Q. Would 20 pounds of water be sufficient to cause the reaction of the ammonia gas and the nitrogen peroxide gas of the water to form nitrite of ammonia, would 20 pounds be enough?

A. Why, yes, 20 pounds water would be enough and the per cents of ammonia gas and peroxide of nitrogen to form ammonia nitrite.

Q. And satisfy all the economical power of the nitrates in the room here or out doors?

A. Yes, but that would not bleach flour, you know.

Q. No, that is what I thought, just what I have been looking for all the time?

A. If you have nitrites in flour, as long as there is nitrite reacting material, why the color is got out of that flour. When I use the word "nitrite" I refer to it as nitrite reacting material; I may misspeak myself.

Q. Nitrite of ammonia is not?

A. Nitrite of ammonia is genuine nitrite, that is the true nitrite and the same kind of a nitrite is found in ham, corn starch and so forth; those are genuine nitrites.

Q. Nitrite of ammonia is a genuine nitrite?

A. You are right, it is.

Q. But won't bleach flour?

A. I never tried it, but I am certain it will.

Q. Does not without the nitrates being first changed to nitrites?

A. Well, that is a question I could not answer, but wouldn't be surprised they did.

Q. I don't care about your surprise, you say you could not answer that question?

A. Well, I don't care with the limitation on it.

Q. You don't know about it, you could not answer?

A. I think we have some more study in that line now.

Q. What plants will change nitrates to nitrites and also change nitrites to nitrates?

A. Well, I know that—take germinating barley, that is a plant which will reduce nitrates to nitrites very rapidly, and other germinating seeds will reduce nitrates to nitrites. I have taken barley and—

1478 Q. Just a moment, doctor, please. I intended merely to call for the list of plants that will do that thing, and not for experimental detail because we want to hurry along.

A. Well, I would not be able to give you the list, but I have tried it with germinating corn, germinating barley and several others, and I found that the nitrates are reduced to nitrites. Now I don't know of any plants that would change nitrites to nitrates; there may be some but I don't know of any, but of course, there are bacteria which are plants which will oxidize nitrates to nitrites.

Q. You didn't understand my question. Now just give it close attention and see if you can answer it. What plants are there, if any, which will change nitrites to nitrates, and also which will change nitrates to nitrites?

A. Well, I have answered that.

Q. What plants?

A. I have answered it in my former question.

Q. I think not, you said they would do it one way but you don't know whether they would do it the other or not?

A. I said I knew of some plants that would reduce nitrites to nitrates and mentioned it, but I said I didn't know any plants that would oxidize nitrates into nitrites, although bacteria, which are also plants will oxidize nitrites into nitrates, and also reduce nitrates to nitrites.

Q. Do you know of any plant which will do both?

A. I don't know any, no.

Q. That is what I thought. Name in detail the human body's natural defenses against nitrites, you referred to them yesterday, give us the whole program completely, now, professionally, so that the toxicologists will say there is the truth or there is the error—the body's natural defenses against nitrites?

A. Nitrites when they enter into the stomach, that is the inorganic nitrites, when they enter into the stomach are rapidly consumed by the bacteria that are in the stomach and also in the intestines. If organic nitrites are given such as ethyl nitrite, or I should say amyl nitrite, the gastric juice decomposes the amyl nitrite into nitrous acid. This nitrous

1479 acid immediately decomposes because it cannot exist as nitrous acid, and any NO₂ which is formed, will combine with the mucus which is secreted by the stomach, and then it will make fine food for the bacteria and be rapidly consumed. Any nitrite that goes through the body, that is through the intestinal tract and is absorbed into the body will be oxidized to

nitrate and some of it will be broken down into other forms, but nitrites, nitrite medication, increases the nitrates in the urine, the nitrate medication on the other hand will also probably produce nitrites in the gastrointestinal canal. The pancreatic ferment, this ferment which is always secreted by the sweetbread gland, will reduce nitrates to nitrites, and the fact that this ferment can do that that we are taking in nitrites with our vegetables daily, and other food stuffs, why, there must be some defense for the nitrites generated by this pancreatic ferment from the nitrite, and this defense that I have mentioned, namely bacteria; second, oxidation; third, different compounds producing decomposition compounds, and fourth, entire consumption of the nitrite as such. The same thing is true of the sulphur dioxide that the United States Government is going to allow, the same process would take place there on that, the sulphur dioxide.

Mr. Butler: I move to strike out his forecast of what the United States Government is going to allow.

The Court: Oh, yes, you are asked the question there.

A. All right; I beg pardon, Judge, that is all right.

Q. Has your answer to my question, asking you to enumerate the body's natural defenses against nitrites been completed?

A. Well, I think it is.

Q. You think it is full and scientifically accurate so that other gentlemen as learned as you are will be able to understand from a strictly scientific standpoint, what your views are?

1480 A. Well, I think my views are sufficiently clearly stated there so that—I can elaborate on them, if necessary, or they can elaborate on them. I think I have put in all the premises necessary to cover your question.

Q. Do bacteria change nitrates to nitrites?

A. Oh, yes, I should say probably 75 per cent, that is nitrates to nitrites?

Q. Yes.

A. Reduce them just about 75 per cent, I would believe they would do that.

Q. Are nitrites foods? A. Foods?

Q. Yes.

A. I believe they are excellent foods for bacteria.

Q. For the human family are nitrites food?

A. No, I would not consider nitrites food for the human family.

Q. Well, you said yesterday, that nitrites were essential to life; do you mean that we must eat nitrites to live?

A. No, that we must have nitrites in order to feed the vegetable kingdom, so that we can have food from the vegetable

kingdom, that if this process did not go on, continually on, animal and vegetable life would become extinct; that is what I meant by that.

Q. Now, I want to be perfectly plain with you about that. Now, yesterday when Mr. Elliott elicited from you by his questions the statement that nitrites are necessary to life, you meant that they were necessary to the life of plants and that the human family could not live unless plants live?

A. That is exactly what I said.

Q. You did not by that testimony, Dr. Wesener, I trust, expect this court and jury to believe that it was your opinion as a toxicologist that the consumption of nitrites by the human family, nitrites as such, was necessary to the life of the human family, did you?

A. Why, most certainly not; why, of course not.

Q. But yesterday when you said they were necessary to life you did not explain that it was necessary to the life of plants and that plants were necessary to the life of people, did you? A. Yes, sir, I did; yes, sir, I did.

1481 Judge Scarritt: He testified the very thing.

A. Yes, I did, yes, sir.

Q. And by the same reasoning you say that the nitric acid which is manufactured by the flaming arc is necessary to life, too, don't you, but you do not mean it is necessary to eat it in order to live, do you?

A. No, sir, not necessary to eat, although we often put it in bread to get a better loaf of bread, the same as hydrochloric acid and other acids.

Q. Alsop has been doing that all the time?

A. The regular baker does.

Q. What baker customarily uses nitrite to make bread?

A. I couldn't tell you, but it has been used; they have used hydrochloric acid; we have given them instructions along that line to show how the gluten is broken down by these different acids to make it more resilient, because the gluten never works good until acids act upon the gluten.

Q. And you believe, do you not, that notwithstanding nitric acid in appropriate quantities is poisonous and will ruin bread, that you can trust the baker's sense, dictated by commercial expediency, not to add too much of that poison into the bread, don't you?

A. Well, if he had it anywhere near too much, it would not even then add a poison, the yeast would never go, the yeast would stop him right there as it would not be a poison, the amount of nitric acid that he would use in his sponge.

Q. Is there any oxidation process in the intestines?

A. Yes, sir, a reduction.

Q. By what means? A. By enzymes or ferments.

Q. You said reductions, did you?

A. And also oxidations, yes, sir.

Q. Oxidations by what particular bacteria works the inside?

A. Those are chemicals, we must recognize, I believe, as chemical ferments, I don't think they have been isolated, but they are spoken of in that sense by bacteriologists and
1482 physiologists, and so on.

Q. Are you familiar with the articles of Mayberry with respect to the amount of nitrites in the air?

A. No, I don't believe, never seen it.

Q. Have you any information on that subject at all?

A. No, I have no definite information; I understand there is something in Thorpe's or Watts' Dictionary, but I have not ever even looked it up.

Q. If you were informed that in the park vicinity of the city of Cleveland there were nitrites in the air about one part per million—1.2 parts per million—would that seem to you to be about reasonable, or have you any idea of what ought to be found, what would be expected in such a case?

A. No, I have no idea at all; I am going to make those tests, but I have not made them.

Q. So then, what would naturally be expected here at Kansas City or in your bedroom or in your kitchen you could not give us any information about? A. No, I could not.

Q. And the particular form in the air?

A. Well, on account of the chemistry of bleaching that is where the oxide compound of this coloring matter is formed, this compound, that is not a nitrite or nitrite re-acting material; I must assume, of course, that there exists there oxide of nitrogen, if not, if the ammonia nitrite, why, then, it is the acid of the flour itself that would decompose the ammonia nitrite and liberate the oxide nitrogen in order to bleach this coloring matter.

Q. I am not asking about the bleaching process at all. I am asking you if you have ever scientifically ascertained the form of the nitrite in the air?

A. Well, that is my answer, I have not been able to do that.

Q. You have assumed that that does the bleaching?

A. Nobody also has done it.

Q. You assume that does the bleaching?

A. Well, I know it does.

Q. And on that assumption you know if it is nitrite of ammonia it must be broken up and be decomposed in the
1483 flour? A. Or exist as oxides of nitrogen.

Q. And then the NO₂ will do the bleaching when the gas is liberated, so that is assuming nitrites in the air do the

bleaching, then you reach the determination that it must be done in a certain way, and from the fact that it must be done in a certain way you reason that it does it; that is your line of reasoning on that, isn't it?

A. Based upon the actual chemistry of the coloring matter which I understand but which you do not understand.

Q. No, of course, Doctor; but now, Doctor, I hope you will not be too hard on me because—

A. Well, I don't want to be.

Q. Because I can't understand your talk.

A. I don't want to be.

Q. But you assume that the nitrites in the air bleach, and because you assume that the nitrites in the air bleach, you assume that NO_2 must be used or broken up in the same way, and therefore you say that the nitrites in the air bleach, that is about your line of reasoning according to this science that you understand and that we do not?

A. I say that it is the ammonia nitrite bleaches, providing the acid in the flour breaks up the ammonium nitrite and liberates this new nitrogen peroxide, and if it is not that process, then the oxide of nitrogen as such exists, bleach the coloring matter, because it must be the oxide of nitrogen to act on this coloring matter to bleach the flour, and ammonia nitrate as ammonia nitrate never could bleach the flour, it takes an oxide nitrogen to bleach, it has to be that.

Q. What chemical changes take place when nitrosylchlorid is used to bleach wheat flour, and go to the blackboard and write it.

Counsel for claimant objected to the question as immaterial to any issue in this case.

A. (Witness writes on blackboard) NOCl .

Q. On the blackboard you have written the chemical letters NOCl . Does that represent to the learned mind of a chemist all of the chemical changes which take place when nitrosylchlorid is used to bleach wheat flour?

1484 A. No, it does not, but you asked me—

Q. Please write on the board the chemical formula or formulae for such changes that take place when flour is bleached by the nitrosylchlorid which you patented?

A. In doing that I wish to state—

Q. Well, do it first and then state.

Judge Scarritt: He can state, if Your Honor please.

Mr. Butler: I ask to have him do it first and then state.

The Court: Oh, well, he can write it out and state it.

A. I would like to state that the formula I gave yesterday was my hypothetical formula based upon three factors that I have not as yet made the comparison analyses to form these three factors, which is usually considered pretty good chemistry, the formula would be this way:—

Mr. Butler: I move to strike out his answer as not responsive; I didn't ask him to define what he said yesterday.

A. $C_{10}H_{16}NOCl$. And for the other would be N_2O_3 .

Q. Well, I know, but how is that gotten at, you don't mean—if you were teaching chemistry and say here you have a substance called flour, and here the compressed arrangement like a soda water fountain, or something like that, you have compressed gas equal $NOCl$, you don't mean to tell this court and jury that you have written on that blackboard the chemical steps to produce the result of bleaching, do you?

A. I do.

Q. All right.

A. The coloring matter in flour is $C_{10}H_{16}$, and that coloring matter is the substance that has this powerful effect over nitrosylchlorid, and therefore when that comes in contact with $C_{10}H_{16}$ it makes that.

Q. What are the three factors that you refer to?

A. These three factors?

1485 Q. Yes.

A. I didn't say there is three factors, I said the coloring matter is $C_{10}H_{16}$, as I make it out, in flour, and when that $NOCl$ comes in contact with it it combines to make this new compound, and that is almost colorless.

Q. What nitrite or oxide of nitrogen does the bleaching?

A. Well, this is no oxide of nitrogen.

Q. Well, just before I asked you this line of questions about $NOCl$ you say flour had to be bleached by the oxide of nitrogen or it would not bleach, that is the reason you knew that the nitrite in the air bleached it. Now, you say that you have invented a thing that does not use the oxide of nitrogen to bleach it at all?

A. That is true, the regular way of bleaching flour, it is done in a commercial way and is this way, there is your oxide of nitrogen made by the oxide process NO_2 .

Q. Oh, yes. A. That is the one I refer to.

Q. So then in this nitrosylchlorid you get old N_2O_3 in?

A. Old N_2O_3 .

Q. So it is the same thing that bleaches it by the Alsop process, is it?

A. No, sir, the Alsop process was oxide of nitrogen, and the other is $NOCl$ which is not a nitrogen.

Q. You did tell me yesterday that N_2O_3 was the thing which bleached in the Alsop process?

A. I have shown that in that last formula.

Q. Did you? A. Yes.

Q. Now, this formula here is the formula which results in your $NOCl$?

A. No, sir, that is the formula right above there, that is that formula for $NOCl$ and that is the formula for the Alsop gas.

Q. Now, is it the NO which bleaches in the nitrosylchlorid?

A. It is the $NOCl$ as a whole.

Q. The $NOCl$ as a whole, Cl means chloride, don't it?

A. Yes, sir, but that is a definite compound, $NOCl$ is a chemical entity, just as much as hydrochloric acid is one.

1486 Q. Now, NO is an oxide of nitrogen, isn't it?

A. NO is an oxide of nitrogen, but not in that relation.

Q. I didn't ask in that relation, and it is made by the Alsop process, isn't it? A. NO is, yes.

Q. That is nitrogen that is made, isn't it?

A. Yes, sir.

Q. Which comes in contact with air it is NO_2 , isn't it?

A. Some NO_2 , and then a great deal of N_2O_3 , according to my analysis.

Q. And these oxides of nitrogen are all poisonous, are they not?

A. When taken in sufficient concentration.

Q. Yes, I understand.

Q. Is chlorine gas a poison?

A. In sufficient concentration, yes, sir.

Q. Is chlorine gas a deadly poison?

A. In sufficient concentration, yes sir.

Q. Is table salt a poison?

A. When given in large enough doses it acts as a poison, yes, sir.

Q. Is flour a poison? A. When eaten raw, yes, sir.

Q. So, then, we have one substance that is a poison in and of itself, and it is flour, is it not, that is the only substance that you have mentioned as being a poison without qualification, isn't it?

A. I don't know about that, I said flour eaten raw, of course it is not a food, eaten raw in sufficient amounts of it, it acts as a poison.

Q. Would you according to the science that you understand and that I do not, would you say that you are scientifically correct when you say that strychnine is a poison and flour is a poison under like circumstances, to-wit, when you take enough of either, that is scientifically correct according to this science that you tell us that you understand and that we do not?

Mr. Elliott: The witness never said that, Mr. Butler. He was simply referring to that coloring matter.

Mr. Butler: He said I didn't understand chemistry,
1487 and he told the truth all right, he told the truth at that time.

Q. Well, according to your profession, then, according to your profession which I understand and which you understand, they insist that I understand it, and I will admit it, so as to get along, you think your answer is scientifically right when you put table salt and flour in the same category as chlorine gas, cyanid, prussic acid and strychnine, do you?

A. Well, there is a difference of degree, and of course the way you put your questions it would be impossible to answer it in plain and simple language unless of course you start out these different ones; flour is only a poison, raw flour, when eaten in large quantity, on account of its mechanical irritation to the mucous membrane like swallowing glass.

Q. Well now is bread a poison? A. Bread a poison?

Q. Yes.

A. No, I don't know of bread, that is food, that is food of course, that is made from flour but it is food.

Q. Is salt food? A. Up to certain quantity.

Q. Is food poison?

A. Yes, if you take too much of it, you bet it is.

Q. Is bread poison?

A. You can get a poison re-action from over-eating with bread.

Q. Is sand poison?

A. In a mechanical way it would be a poison.

Q. Is glass poison?

A. In a mechanical way it would be a poison.

Q. Can you name any substance that is not a poison?

A. Why, all depends of course on your premises, there is always that—

Q. I know. A. I went to answer you.

Q. Is there any substance which is not a poison?

Judge Scarritt: Just answer the question.

A. I answer it in this way, that I don't know of any one substance inherently of itself in a certain dose which is a poison; it is always a question of the test, the amount, the concentration, and other conditions that have got to be taken into consideration before you can call it a poison; all toxicologists are agreed on that; you will find it in every
1488 text book on toxicology.

So as to be perfectly clear then if the old state of Missouri that it is a crime to administer any poisonous substance

to any person with intent to kill or injure that person, now, assume that is true, then when it was proved that strychnine in some amount not stated was administered, you could truthfully and conscientiously say that no poison was added unless you were told how much strychnine was given intending to kill the woman, if it was a woman couldn't you?

A. I would have to answer that in a scientific way, as I understand, and a physiological way, and then I would have to disregard the legal side of it because I know nothing about that, that would be for you.

Q. Well, now, as a scientist, that is what I am trying to get, I can answer the law of it and put the fellow in the penitentiary, that would be simple enough, but as a scientist?

Mr. Helm: Because of the intent would you—

Mr. Butler: Because of the poison.

Q. But now, as a scientist this hypothetical question is given to you? There was administered to Mary Doe strychnine; the proof shows that; Doctor, as a pharmacologist, toxicologist, analyst, expert on foods and pumper of stomachs, was there a poison given to the woman; what would you say?

A. Well, if I found strychnine I would say yes, I found strychnine, but I don't know whether it was given in a poisonous dose unless I find it in a poisonous dose I could not answer whether death was really the result from the strychnine administered unless I find enough strychnine there to account for it.

(Question read by the reporter.)

A. I would say that strychnine was given which in certain doses is recognized as a poison, and in other doses recognized as a very fine remedy.

1489 Q. Then if the question was put this way: We are unable to tell you how much strychnine the man gave the woman, would you be obliged to answer that you couldn't tell whether he gave her poison?

A. I would have to answer that way, I couldn't tell.

Q. And if it was a very minute dose of strychnine, less than an ordinary medicinal dose, you could in good conscience say that no poison was given?

A. I would have to say that no poison in that small dose was given because strychnine is not a poison except a dose—

Q. Yes, that is right, because strychnine is not a poison?

A. In such a dose as you question.

Q. So that if I would get enough to give Judge Scarritt in his food a little cyanide in every biscuit that Judge Scarritt should eat from now on till I leave town, and you were asked

by this court—assume that in each of these biscuits there was some cyanid—we can't tell you how much, then you would have to truthfully and conscientiously say: Until I know how much I could not answer as a scientist whether Butler gave some poison—

Mr. Scarritt: We object to that, if Your Honor please, just a stump speech before the jury, and for the reason that there is no evidence that there is any cyanid in this flour or in this case.

The Court: No, it is competent if there are two theories here, and I think he has right to illustrate and show the position that the witness occupies.

Judge Scarritt: He can show it by some relation to the case, and not make these stump speeches.

The Court: Well, the question is a little bit objectionable that way, but he may answer the main part, I don't care anything about these flourishes.

A. Well, I have one answer to make to that, and that
1490 is no substance which of itself can be recognized as a poison in small doses.

Q. Well, what do you mean, if it is given in less than actual physiological doses, then there is no poison, is that so?

A. It could not be considered as a poison.

Q. What is the most virulent poison known?

A. I should think prussic acid is the most deadly.

Q. You say prussic acid is a most virulent poison?

A. I know it, yes.

Q. There are some germs that are more poisonous, are there not, associated with disease, I am thinking of tetanus or lock-jaw, that gives the lockjaw, somebody told me that that was a very bad thing, and a most terrible poison; is that so within your knowledge?

A. Why, tetanus, the tetanus bacillus of course is a disease—that is, it produces disease in men, it kills men, no doubt about it secreting a poison, but I don't believe the tetanus toxin itself would be considered as virulent as the living cell.

Q. Doctor, since we adjourned it has been suggested to me that the average fatal dose of prussic acid is one grain and of . . . is one-twentieth of a grain, and aconitin is one-thirtieth to one-twentieth of a grain, is that right?

A. That may be right, that may be right.

Q. Aconitin would be twenty or thirty times as poisonous as prussic acid?

A. Well, in that respect, yes, of course I had in mind, the gas that you breathe, it is about instantaneous, I don't know just how much of the gas exactly you have to breath.

By Mr. Lyons:

Q. Couldn't hear you Doctor?

A. I said the gas, prussic acid gas, which we breathe, of course the effect of that is almost instantaneous; I did not figure just how much of that gas would be necessary, that is, take a grain or two grains, but I had in mind the rapidity with which it worked.

Q. Now, to further illustrate your position about
1491 poison, I understand you to say that no substance is in and of itself a poison, and you must have an idea of quantity, and the quantity must be such an amount that some physiological result would be disclosed to the observer.

A. Yes, to its deleterious effect either in one dose or in several doses given for a long, long period.

Q. I don't mean a single dose, that is, take it in any food, in which you are a specialist, no substance can be said to be poisonous until there is enough of it to show symptoms either by a single dose or for a continued period?

A. Yes, sir, or by constantly taking the poison.

Q. Now, let's see if we do not get into some practical difficulty in keeping our food pure, if it is true the nitrites may be taken in such quantities as to be injurious, I think we agree upon that? A. Yes, sir.

Q. So, then, if there is some in ham but not enough to be a poison some in turnips but not enough to be a poison, the New England dinner but not enough to be a poison, some in bacon, but not enough to be a poison, some in water but not enough to be a poison, some in flour but not enough to be a poison, you think that it still would be all right as long as there wasn't enough in any one of the things to be a poison, and that you could conscientiously swear that each one was free from poisonous substances unless the taking of one would show symptoms of injury?

A. Unless the taking of one would show symptoms of injury either at that time or by constant use of that substance.

Q. Yes, I know, so that the situation would be this: We will say we have half enough in ham to be poisonous, half enough in bacon to be poisonous, half enough in carrots to be poisonous, and there is none in the bleached flour to start with, but when we bleach it by the Alsop process we put half enough in the flour to be poisonous, then in a suit by the Government to prevent adding to flour, or to prevent adding to ham, or to prevent adding to bacon or adding to water, the inexorable
mandates of your science would require you to say that
1492 no poison was added to either, am I right?

A. I would say that no poison was added to either in that sense, any more than nature adds a poison to that same flour when you age it, not a bit more, nature does the same thing.

Q. Well, I know, now, nature produces a great many things that we must avoid, doesn't it? A. A great many things.

Q. Like typhoid fever? A. Yes.

Q. Nature sometimes through seepage and other things perhaps pollutes the waters of the stream so that those who drink the waters take typhoid fever from it?

A. But nature does not do that but man does, man pollutes the water?

Q. By natural processes it occurs? A. Yes, sir.

Q. So that you would not argue that because such things occur by natural processes that these things might be added to food to make it still better without adulterating the food, would you?

A. I would not argue entirely that way, but since I am repeating in this flour bleaching exactly what nature does, then I feel I am following her exact ways and methods and which are so appreciated by the consumer that he wants a white flour.

Q. Is it within your knowledge that in cities by manufacturing plants nitrites are more common than in the country?

A. Well, I have heard that stated but I don't know whether that is true; I think the fresh country air generates just about as much nitrites as you get in the cities and there may be more because it is—this electrical phenomena that is going on all the time containing this nitrogen and oxygen air.

Q. It is by Mayberry that in the park regions of Cleveland, Ohio, which is a manufacturing town— A. Yes.

Q. There is, as I hold the figure in my mind, about 1.2 parts per billion of atmosphere, but that in the worst parts of 1493 the city by the factories by the decaying foods and excreta and so forth, where disintegration is taking place, that it is twelve times as bad. Now assuming that to be true, would that in your opinion [by] any reason why country air is more wholesome than the foul air of manufacturing cities where markets are not kept clean and the like?

A. Well, the foul air in the manufacturing city where they have this decay going on has nothing to do with the formation of oxide of nitrogen in the air.

Mr. Butler: I move to strike that out as not responsive.

The Court: Yes.

The Witness: Well, your assumption is one that I could not accept, sir.

The Court: But he is assuming that.

Q. I ask you to assume it for the purpose of your answer? Of course, I would not ask you to say it is true, because you don't know?

A. Scientifically, of course, your assumption is impossible, that is why.

Mr. Butler: I move to strike that out.

The Court: Yes, sir.

A. Well, I want to be honest with you, Mr. Butler, but I would like to answer it in an intelligent way; it is almost impossible to do it, that is the trouble.

Q. I see, it is but you can answer it? I will withdraw that and make it simpler. If the nitrites in this air in this room was multiplied by twelve, can you as a scientist tell us whether or not the air would be more wholesome or less wholesome by the increase of nitrites?

A. Well, there wouldn't be any difference in that amount as you put it.

Q. It appears in proof here that the dilution or concentration of the good flour, the flour seized, was a thousand 1494 parts to the million, now suppose we would add, make this air in this room contain a thousand parts of NO₂ to the million of air, are you able to tell us whether the air would be made more wholesome or less wholesome, or whether it would not be affected by it?

Mr. Elliott: I object to that question as not properly reflecting the testimony, at least I have no recollection of any witness testifying that this flour was [bleach] with any such concentration.

The Court: Well, counsel has the right to put that. Ultimately that is for the jury to say whether the foundation is based upon testimony or not. In my ruling I am not holding whether that is so or whether it is not so. He may answer.

To which ruling of the court claimant then and there duly excepted.

(Question read by the reporter).

The Court: It amounts to this, assuming this to be so, whether it is or not.

A. Well, the air would for breathing would be less wholesome naturally, that would be too much of a concentration of NO₂ in the air to breathe as air.

Q. It would kill people if they were kept in the room, would it?

A. For a long long time, yes, it would generally produce certain change.

Q. Asphyxiation, put hemoglobin in the blood and strangle them?

A. Eventually I presume that would do that with that concentration, yes, sir.

Q. The same as it does the moth?

A. They have not proved they killed any moth to me yet.

Q. Not to you? A. No.

1495 Q. Well, you are not on the jury. When you left the witness stand I wrote a chemical formula on the board, if you will turn around and look at it, I will propound a question to you in the light of that. At the top of the board is NOCl , that is your acid for the re-agent; the next is the formula which you say takes place when it bleaches; the next is the formula which you say takes place when Alsop process bleaches. Then I have written NOCl Nitrosyl chlorid, plus H_2O —water—equals HCl hydrochloric acid and muriatic acid, plus HNO_2 . Is that chemical formula a possible chemical formula when NOCl comes into contact with water?

A. That is possible yes sir.

Q. HNO_2 is nitrous acid, isn't it?

A. HNO_2 as such is nitrous acid, but it would not exist—but it does not exist as nitrous acid, it would not exist as nitrous acid.

Q. Well, not isolated. Now when NO_2 comes into contact with water it produces HNO_2 , doesn't it, and HNO_3 in equal molecular parts? A. Yes, sir, it does.

Q. And if HNO_2 takes on 1 of oxygen it becomes nitric acid, doesn't it? A. Yes, sir, it does.

Q. So then NOCl in contact with water produces nitrous acid just the same as NO_2 produces nitrous acid when it comes into contact with water, doesn't it?

A. NOCl does with a certain amount of water, a sufficient amount of water.

Q. That is the formula I tried to have you write, but I did not understand it well enough to make myself clear. Now I want to ask you about N_2O_3 , and I want you to answer fully and finally so I won't have to repeat, if you can, because I want to finish. What oxides of nitrogen are formed by the flaming arc in the Alsop process of bleaching flour, and give the formula for each?

A. The first oxide of nitrogen, that would be formed in the flaming arc when it comes in contact with the air would be nitric oxide NO , this NO would take up oxygen and form NO_2 , and then possibly N_2O_4 which is virtually the

1496 same thing, and then N_2O_3 , that is you would get NO_2 as one and N_2O_3 , that is all I know of; there may be some more but that is all that I know.

Q. Is N_2O_3 a gas?

A. I believe it is under certain conditions.

Q. Is it a gas as made by the Alsop bleacher for bleaching flour? A. I think it is there, yes.

Q. What color?

A. I couldn't say, I have never seen it in sufficient concentration as made by the Alsop machine.

Q. Have you ever seen N_2O_3 as a gas anywhere?

A. I don't know that I have as a gas.

Q. What is the chemical process by which it is made by the Alsop machine? A. Well, it makes NO .

Q. Now let's go slow, we started out with NO ? A. Yes.

Q. Then we add one of oxygen from the air which makes that NO_2 , that is nitrogen peroxide? A. Yes.

Q. The same thing that is mentioned in the patent?

A. Yes, sir.

Q. Now what is the next step?

A. Then you have some NO left which is in the NO_2 which makes the N_2O_3 .

Q. Just wait a moment, the next step would be, would it not, if water was brought into contact with it, nitric and nitrous acid?

A. Well, you would have the NO there too, but sometimes it would make N_2O_3 .

Q. How is that.

A. You still have the NO_2 there which would make N_2O_3 . Your NO does not oxydize normally to NO_2 , not by any means.

Q. So you would mix NO ?

A. You have NO and NO_2 , make N_2O_3 .

Q. First then we have NO_2 ? A. Yes.

Q. And NO_2 plus NO makes NO_3 . A. N_2O_3 .

Q. Now that is what takes place, is it?

A. Yes, sir, that takes place.

Q. And that is what bleaches?

A. And that I found to be the active bleaching agent.

Q. And you can't tell us whether it is a gas or a liquid?

1497 A. It is a gas as it comes from the Alsop machine it is mixed with the air certainly.

Q. What is its density, color and odor as it is, give any gases formed?

A. Well, I could not give it now, I have not looked it up.

Q. Can you give its density?

A. No, I don't know that.

Q. Can you give its color?

A. Well, I believe this compound is bluish or green at the time, that is, when it is in the liquid form.

Q. I am speaking of it as a gas?

A. Well, I think—

Q. There is no blue liquid used by Alsop to bleach flour, is there?

A. Oh no, no, not at all.

Q. Now let's stick to it then?

A. As I have seen it liberated of course it appears to be a sort of a reddish pale reddish color; now whether that is the pure N_2O_3 or not I don't know.

Q. What color is that?

A. Its natural color.

Q. It is pale reddish?

A. There may be some N_2O_3 in there or that may be only NO_2 , NO_2 is very red.

Q. What do you think it was that made the flour obtained of Leflang, who manufactured the flour seized, give this odor that he described?

A. That was that compound I have written there on the board.

Q. You tell us it smelled exactly like the NO_2 let loose in court here?

A. It smelled somewhat like it, but it is not the same, it might be everybody mistaken the compound as an odor.

Q. Are you familiar with the German work called the Gmelin Hand Book Inorganic Chemistry, 7th edition, published in 1907? A. Yes.

Q. Is that a reputable work?

A. I consider that a very good work, yes, sir.

By Mr. Lyons:

Q. Can't hear.

A. I consider that a very good work.

Q. At page 263 of that work it is stated that N_2O_3 does not exist as a gas, but that the liquid N_2O_3 on going to the gaseous state breaks up completely into nitrogen peroxide NO_2 and nitric oxid NO in the presence of oxygen in the air NO goes to NO_2 , is that true?

1498 A. And NO in that same mixture, isn't it?

Q. Well, do you agree with the statement of the author?

A. I agree with the statement so far as he says that it breaks it up into NO_2 and NO that makes the N_2O_3 , you get that combination.

Q. Let me see, do you agree with this statement; N_2O_3 does not exist as gas; is that true or false?

A. I have never made the test, I presume the author has, I couldn't say, I couldn't say to my knowledge.

Q. Yes, it does exist as blue liquid you say?

A. Yes, sir, a blue liquid.

Q. And you say that no blue liquid is used to bleach this flour? A. Never seen any, no.

Q. But without knowing whether or not N_2O_3 exists as a gas at all you have sworn, have you not, over and over and

over again, that it was N_2O_3 that bleached this flour that was seized?

A. Certainly have done that, yes sir.

Q. When you don't know whether a thing ever existed or not how in the light of science can you swear that that thing bleached this flour?

A. That is very easy.

Q. I see it is.

A. Because I have tried absolutely pure peroxide of nitrogen, which I knew was pure this way, and that don't bleach flour, and then I have estimated how much N_2O_3 there was in this gas as you see it there, and how much NO_2 and I found 75 parts of N_2O_3 and 25 parts of NO_2 .

Q. Was that N_2O_3 a gas?

A. I don't know what it was, it is in there.

Q. Was it a solid?

A. It was simply a mixture that gave that analysis.

Q. Was it a liquid?

A. It appeared to be a gas or a combination that is, as it comes from the Alsop machine.

Q. Did it have density?

A. Didn't go into that.

Q. Did it have color different from the Alsop machine?

A. Didn't see any color, the gas is not concentrated, I think.

1499 Q. All right, so then without knowing whether it had density, form, shape, color, liquid existence or solid, you do swear that it was N_2O_3 that bleached the flour?

A. N_2O_3 and I have made it direct from sodium nitrite right underneath this coloring matter in solution and liberated it before the air could strike it, and that bleached it, and that was N_2O_3 .

Q. And you also agree with this statement from the Gmelin Hand Book of Chemistry that N_2O_3 does not exist as a gas?

A. Can not exist as a gas itself, it decomposes, but then you have NO_2 and NO in the mixture and that may go as N_2O_3 .

Q. Well, if N_2O_3 does not exist as a gas can the Alsop process bleach flour with N_2O_3 as a gas?

A. Because there it exists, as a gas, as I say in the Alsop process NO and NO_2 , that is they are separate but that makes the N_2O_3 and there it exists as a gas but not as N_2O_3 but NO_2 plus NO makes that.

Q. I am sure that I do not make myself clear to you. If there is no such thing in existence as N_2O_3 as a gas, now assume that to be true, then I ask you whether as a scientist

can it be true that N_2O_3 is a gas and as such bleaches flour in the Alsop process?

A. It is the—

Q. Now can't you answer that yes or no, Doctor?

A. No.

Q. You cannot.

A. Why, the N_2O_3 could not exist as N_2O_3 in a gas, but it can exist as NO_2 plus NO and that is what does the work in the Alsop machine.

Q. NO_2 made at the flaming arc? A. Yes, sir.

Q. When NO_2 comes into contact with the air as it goes to NO_2 ?

A. And a lot of NO left in it which makes it NO plus NO which makes N_2O_3 .

Q. The evidence in this case shows that the Alsop bleacher was some 30 feet—the gas machine, the gas producer, from the flour, that the NO_2 from that was conducted by means of a pipe to a storage reservoir.

1500 A. NO_2 or the NO , which now?

Q. NO or NO_2 , that the gas resulted. I want to ask you whether you are of opinion that the NO_2 started from the flaming arc passing through?

A. It don't start there, it don't start there.

Q. I thought you said that was the first?

A. NO starts there and there may be—

Q. I misspoke myself, whether NO starting from the flaming arc can pass with the blast of atmosphere through the reservoir to agitator with the flour and remain NO all the time?

A. No part of it becomes NO_2 .

Q. Can any of it remain NO ?

A. Oh yes, a great deal of it, oh, yes, that is where the books on chemistry have got something to learn yet, but you hold the NO changes into NO_2 .

Q. I see, the books on chemistry are mistaken on that?

A. No, they have not gone into that to the final point; I thought that was right too, but I found it was not exactly right.

Q. When did you find that out?

A. Oh, I have been working on that for the last two or three years.

Q. Was that before or after the hearing at Washington that you found that out?

A. I think I heard something from Prof. Snyder before on that point, and I may have looked into it myself after that.

Q. Was that before you found out that this Alsop process put nitrites in the flour or after?

A. I found out that the nitrites were not in the flour was after the Washington hearing.

By Mr. Lyons:

Q. Can't hear you.

A. After the Washington hearing about the nitrites on flour bleached by NOCl .

Q. Immediately after the flour be subjected to the Griess test will you get the nitrite reacting material?

A. You will get the nitrite reacting material.

Q. That is the Griess reaction?

A. Produced with the Griess reagent, because it consists of the same group that acts like a nitrite but that is not a nitrite.

1501 Q. The same reaction that you get on treating the Alsop process the same way, exactly? A. Yes.

Q. On testing the flour before it goes in, it will not give a reaction test, but after it comes out immediately it will?

A. Yes, sir.

Q. That is true, isn't it? A. That is true.

Q. But it is not nitrite?

A. That is not a nitrite, no sir.

Q. What is the difference between a mixture and a compound in chemistry?

A. Well, a mixture is simply a physical preparation which may be only mechanical and which does not relate to the chemical mixture a compound may be a chemical where there is two or more elements in combination.

Q. What is N_2O_3 a mixture or a compound?

A. N_2O_3 radicle is a compound.

Q. I am not talking about the radicle, I am asking about the substance. A. N_2O_3 is a compound.

Q. N_2O_3 is a compound but does not exist as a gas?

A. Not as I know of, no.

Q. Is it not understood by chemists generally that the mixture of NO_2 and NO with air goes completely into NO_2 , and makes no NO , isn't that the chemistry of everybody of note on the subject?

A. Yes, I believe that is the way it is understood, but I know that NO and NO_2 often go as N_2O_3 in making chemical reactions.

Q. Well, I know.

A. No other body comes in, and simply get by applying air it will all become NO_2 .

Q. Sir William Ramsey is a noted English chemist, isn't he?

A. Yes, and a very dear friend of mine.

Q. Does your dear friend Mr. Ramsey lay it down about in this way: that the mixture of NO_2 and NO with air or oxygen goes completely to NO_2 and leaves no NO left?

A. It will eventually, yes.

Q. That is the way Mr. Ramsey leaves it?

A. It will eventually do that, yes, sir.

1502 Q. And still you say that N_2O_3 is the gas which bleaches and also say that there is no such gas?

A. I say N_2O_3 is the gas that does the work, but it does not exist as N_2O_3 gas, but NO_2 plus NO , that is the only way I could explain it.

Q. So it does not exist as N_2O_3 but as NO it does the bleaching? A. NO plus NO_2 which makes N_2O_3 .

Q. NO mixed with other things?

A. All the elements are there to make this compound when it comes in contact with this coloring matter making N_2O_3 , yes, sir.

Q. And so after all it is the NO_2 mixed with other things that does the bleaching?

A. It is the NO_2 plus NO or N_2O_3 as such that does the work.

Q. Mixed with other things does the bleaching?

A. Well, it goes as N_2O_3 according to my analysis, yes, sir.

Q. But, I say, it is the NO_2 mixed with other things that does the bleaching?

A. Mixed with NO , it does the bleaching with NO .

Q. But N_2O_3 is not a mixture but it is a compound, so you have told me? A. Certainly, yes.

Q. But now you say after all of your analysis you have reached the conclusion that NO_2 mixed with NO does the bleaching?

A. That would be my deduction because it is N_2O_3 and its radicle that I find here does the bleaching, and I have liberated this N_2O_3 directly underneath a woolen sack containing this coloring matter, so that no air would come in contact with it, and as soon as that N_2O_3 was liberated the color went that quick, and I found that and got this N_2O_3 out of that coloring matter.

Q. May any one educated in chemistry write N_2O_3 as indicating a mixture, does that not indicate a compound?

A. That is such as a compound, yes, but you can also write it NO_2 plus NO is a compound.

Q. You say it is the mixture that does the bleaching; you have said that it was N_2O_3 that does the bleaching, and you say N_2O_3 can not be used to express a mixture in chemistry, have you not?

1503 A. I have said that, and my analysis of the Alsop gas figures 75 per cent N_2O_3 and 25 NO .

Q. As a mixture?

A. As a mixture, and the gas comes through that, through the air that goes through the flaming arc.

Q. But you say that N_2O_3 can not be used to write a mixture?

A. It is not a mixture, N_2O_3 is not, because that is a compound, a chemical compound, I have seen the gas isolated as N_2O_3 , now whether it could be as such in very infinitesimal particles analyzed or not, that is something I don't know, but it analyzed as 75 per cent N_2O_3 and 25 NO_2 ; I never seen it, nobody else has seen it.

Q. You tell me you agree with these eminent German and English authorities that it does not exist as a gas?

A. Well no, but they say there is a compound of NO and NO_2 .

Q. No, a mixture?

A. Well, it acts like N_2O_3 , sir; it acts like N_2O_3 .

Q. Now give to the reporter in most exact and scientific way you can the details of your analysis by which you prove the Alsop gas to be N_2O_3 ? A. Well,

Judge Scarritt: I object to that as a repetition, as I understand it, it was done on the board there.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I drew the gas which came through the flaming arc or the discharge or the air containing the gas into a solution of alkali.

Q. What alkali? A. Just a normal alkali.

Q. What substance?

A. Sodium or potassium, don't make any difference, every chemist knows what the alkali is.

Q. Which one did you use? A. Sodium.

Q. What salt-sodium?

A. Well, just a normal, of course soda usually means the caustic soda.

Q. What is the formula?

A. $NaOH$. The air containing this gas was drawn through this normal caustic soda solution for a given volume.

1504 Q. What volume?

A. Well, I forget now; I have none of these details right here, you know, but I am telling how I did it, and this will be sufficient information for your expert to repeat it if they see fit to do it. Then I titrated the amount of alkali that was used up to these gases, understand, and I got a certain acidity then.

Q. What acidity?

A. I don't remember now. Then I titrated with the decinormal potassium permanganate.

Q. The formula?

A. KMnO_4 , and I found that I used a certain amount of this permanganate, hence it acts upon the N_2O_3 or potassium nitrate or sodium nitrate as I had it in this alkali to form the nitrate—

Q. What nitrate?

A. The nitrate of sodium in that case, of course I used caustic soda, and from that the total acidity, and from the amount of permanganate necessary to raise nitrous acid to nitric acid I figured out the amount of N_2O_3 that would be in that Alsop gas, and it was in the amount of 75 to 25 of NO_2 , and I know NO_2 as such does not act upon the coloring matter at all, so it must be the N_2O_3 .

Q. Did you titrate on the alkaline solution or acid solution?

A. Oh, I titrated on alkaline solution for the acid because I put in enough in there to have it remain alkaline.

Q. You have given the full experimental method?

A. I have given sufficient amount so that anybody can follow that out easy enough.

Q. Where did you get the gas?

A. In our laboratory up in our milling room.

Q. An Alsop machine?

A. We have an Alsop machine.

Q. How far from the flaming arc did you get the gas?

[—] I got that after it goes through a big tank.

Q. How far from the—

A. Oh, I should say probably 4 to 5 feet from the machine, but the gas goes through this tank.

Q. How long after it left the arc?

A. As soon as it would commence to come through with the blower, we took it just as it came through.

1505 Q. What was the concentration?

A. I don't know that, I have never estimated the concentration; I don't remember that now, I don't remember.

Q. You could not have forgotten it if you never knew?

A. Well, I don't remember, I may have taken the concentration of it, and I don't remember as I ever have, but I took the gas that blew through, and collected it for a certain number of seconds or minutes in this alkaline.

Q. You got an Alsop bleacher in your laboratory?

A. I got an Alsop bleacher up there in the mill, it is a small one for experimental purposes, just to study this process, the chemical action that takes place.

Q. You testified for the Alsop people in various litigation in fact?

A. I have only testified once for them and that is in their patent suit against the Naylor & Girard.

Q. You did not go to North Dakota for the Russell Milling Company when they sought to enjoin Prof. Ladd from enforcing the pure food laws of that State against the Alsop bleacher?

A. I did not go up there because I was in the hospital with appendicitis at that time.

Q. You say nitrogen peroxide does not attack coloring matter at all?

A. I have not been able to prove that it does; I have tried it in various ways.

Q. Does nitrogen peroxide attack any constituent of the flours?

A. I have not been able to determine that point.

Q. Does nitrogen peroxide attack the flour making the zantho proteic compound?

A. Why, it would, of course, if you pour it on, any peroxide would attack flour if you pour it on the flour.

Q. Does nitrogen peroxide made by the Alsop bleacher in certain quantities produce the zantho proteic compounds?

A. It may, providing you would run the flour through the agitator about 500 times.

Q. Or keep it in it? A. Or a thousand times.

Q. Now the bleaching time is half a minute?

1506 A. To go through the agitator?

Q. Yes, for one bleaching? A. Probably that.

Q. How is that?

A. I presume probably that much, yes.

Q. Five hundred minutes then, less than nine hours, would be the equivalent to putting it through there a thousand times?

A. I did not get that last.

Q. I say if you kept it in there about 500 minutes then according to your figures would give the zantho proteic reaction?

A. Well, if the flour was kept in constant agitation it is liable to.

Q. Is it necessary in order to get the NO₂ made by the Alsop machine to keep the flour in constant agitation?

A. That is the quickest way of course, to bring about bleaching.

Q. If it adhered to the walls of the agitator it would not take it? A. It would not bleach it.

Q. Well, it would not take xantho proteic reaction?

A. Why, it might in time if there were sufficient moisture there; of course, you would have to have moisture with that, to bring about that, you know.

Q. Now in order to bleach it by the air would you have to keep shaking it too, or is that a different action in the air that will bleach without shaking?

A. Well, if you simply run the flour through a sort of a cyclone bolter about 4 or 5 times you bleach it just as quickly

almost, you would have to treat it with more air, take a little longer, but you get the same results, and you could get the same amount of nitrites or nitrite reacting material in there, but storing it you use the flour beds a good deal, and for that reason it is difficult for the air to come in contact with the coloring matter in the flour.

Q. So that as a matter of fact you don't need any flaming arc at all, all you need is the pure, pure air?

A. If you want to use enough pure air, and in sufficient quantity you would produce exactly the same result in regard to bleaching.

Q. If there be no nitrites in the air will it do it?

A. If there be no nitrites in the air it would be very doubtful whether that bleaching would take place, it is not the oxygen, it is not the oxygen.

Q. Now zantho proteic reaction means the yellow action on the protein? A. Yes, that has reference to it.

Q. Now the zantho proteic reaction means the yellow action on the protein? A. Yes, that has reference to it.

Q. The more you say the stronger the yellow?

A. Up to a certain point, yes, I should say so.

Q. And the yellow begins to increase before you can observe it with the naked eye, doesn't it?

A. I don't know about that; I don't know about that.

Q. If the testimony in this case is true that it does, that the yellow begins to increase step by step with relatively small amount of NO_2 treating it, would you think that was the zantho?

A. Yes, but I don't believe you would get that until you get free nitric acid there; I don't believe you get that reaction until you get free nitric acid.

Q. But you never experimented to see?

A. Well, that is the way the zantho proteic reaction usually works; you have got to take the free nitric acid as free nitric acid; you get that point.

Q. I know that is the reason you are swearing that this is N_2O_3 ?

A. No, Mr. Butler, I think your experts will agree that the chemistry I have given you there, that that is sound, I am sure they will.

Q. Now if there be a little NO_2 [2] added to flour but not enough to combine with all of the coloring matter in the flour, is there any zantho proteic compound formed?

A. I would say not.

Q. Not even a trace?

A. I would say not even a trace as far as the zantho proteic reaction is concerned.

Q. Yes, NO_2 will combine with oil?

A. NO₂ will combine with oil after a certain treatment and a certain amount.

Q. It will combine with the gluten?

1508 A. After you get a certain concentration there it will.

Q. It will combine with the color?

A. NO₂, when you say NO₂, I always wish to be understood N₂O₃, I wish that always to be understood.

Q. All right. Now assume that it combines with the color, the color is the base? A. The color is the base.

Q. The oil is a base? A. The oil can act as a base.

Q. The gluten can act as a base, can't it? A. Yes, sir.

Q. The proteins which includes the gluten? A. Yes, sir.

Q. Now is there a law of chemistry to the effect that if you add such a substance, such a radicle, in minute quantities, not enough to saturate all the bases, that it will distribute itself to the different bases, some going to the color, some to the oil, some to the gluten and the proteids, is there any such law as that in chemistry?

A. There is such a law in so far as it will go to that point that has the greatest affinity and the coloring matter has the greatest affinity.

Q. Is it a law that if there are several bases of different degrees of affinity and the radicle be introduced which is not sufficient to saturate any one, that it will all go to the one having the strongest affinity; is that the chemical law or is it the chemical law that it will combine with all of the bases for which it has an affinity, depending upon the quantity of the base and the strength of the affinity and the quantity of the radicle used?

A. No, I believe that the law is that it will go to the one with which it has the greatest affinity.

Q. No exception to that law that you know of?

A. There may be some exceptions but that is the general law, I believe.

Q. That is the law? A. I believe so.

Q. That is the law of mass action, is it?

A. I don't know whether you call that mass action.

Q. There is a law of mass action?

A. Well, with certain reactions that took place, though to be there a preponderable amount has got to be there, to bring about a chemical reaction.

1509 Q. That is the law of chemistry?

A. I believe that is the law, yes, sir.

Q. Now you said the coloring matter yesterday was terpene. I want to mark that down there so we won't misunderstand it at all, on this blackboard. I have learned that that word is sometimes spelled "terpene", is that the right way to spell it? A. Yes, sir.

Q. You told me the formula was what, I cannot remember that? A. As I figure it out now it is C10H16.

Q. Did you tell that yesterday? A. Yes.

Q. C10H16, that is 10 of carbon and 16 of hydrogen?

A. That is right.

Q. That is terpene, that is the coloring matter in flour, is it?

A. That is as near the formula as I can get now to terpene, hypothetically it figures the C10H16.

Q. The coloring matter in flour is yellow, is it not?

A. Yes, sir.

Q. Is the coloring matter of terpene yellow?

A. No, not the common terpene of nature, this is the new terpene.

Q. It is a new terpene? I think the chemists, as laid down by all of the chemical works in the German and in the English language say that terpene is colorless, is it not?

A. Yes, sir.

Q. And it is laid down that lots of time it turns yellow, rather rosin or resin, isn't it, that is the learning on the subject, isn't it?

A. As far as they know anything about turpene, that is as far as they have gone in terpene, yes.

Q. Do you know anybody in the world except yourself who ever went far enough to find the kind of terpene that is yellow until it takes on the reaction except yourself and your associates in the Columbus Laboratory?

A. I don't know of any one else that is investigating the subject as we have investigated it with this particular coloring matter.

Q. So that you have discovered a new kind of terpene?

A. Yes, sir, and we are the first ones that has ever gotten out the coloring matter of flour.

1510 Q. You discovered a new kind of terpene. Well, now, let us see about this, gentlemen, Hoffman has written a work on volatile oils, hasn't he?

A. I don't remember his name.

Q. Well, isn't he one of the most eminent living men on oils, don't you know that? A. You say so.

Q. Well, I don't know.

A. I don't think I ever read him on volatile oil, no, I have not had any occasion to.

Q. Had no occasion to? A. I don't think I ever read it.

Q. You are not familiar with it, so you don't know whether his work is any good or not at all?

A. I am not familiar with his work.

Q. But he lays it down that terpenes are colorless oil?

A. I know they do, but here is one that has color, and that is a new one, they didn't know that such terpenes existed in vegetable matter at all.

Q. Cushing, the same author that Mr. Elliott brought forward yesterday or a few days ago, in his work on Pharmacology, lays it down, does he not, that the terpenes are colorless?

A. I believe he does, that is true.

Q. And that after being kept volatile oils are generally clear colorless fluids, some of them are green from the presence of vegetable or small quantities of vegetable matters, while others are blue? After long keeping they often acquire a yellowish color and the acid reaction from the formation of resin; is that the truth?

A. That is the truth as far as those terpenes are [concern].

Q. As far as he learns?

A. In those kind of terpenes that would be correct.

Q. Now Richter's Organic Chemistry, Volume 2, is that a reputable work? A. Yes, sir, it is.

Q. [Is] is one of the best known in the world, isn't it?

A. Very excellent indeed, sir.

Q. He says the true terpenes when pure are liquids,
1511 strongly reacting liquids?

A. As they get them out of oil of turpentine and the citrus fruit too, that is as far as he goes, he don't know anything about the terpene in the flour.

Q. Many are oxydized by the oxygen of the air and they manifest a tendency to solidify? A. That is true.

Q. So then until your researches all of the chemical learning on the subject was to the effect that terpenes were colorless and by the lapse of time turn yellow, resolidify?

A. Yes, that is terpenes they get from the oil of turpentine and the citrus fruit.

Q. When did you first report the discovery of a new kind of terpene which starts up yellow and upon the lapse of time loses its color? A. Oh, I have been working on that—

Q. I didn't ask you when you commenced working on it. I ask you if you reported it to the chemical world?

A. I have not reported that as yet, sir. I would like to finish my answer, but I have indicated in several articles that I have written, that we have identified this coloring matter or have established a close relationship with it, but it was not the province of this article to go into the nature of the coloring matter, and that that would be taken up at a later date.

Q. Did you ever write down on any paper or cause it to be, or testify in any public place until yesterday, until today, that you discovered a new kind of terpene which is naturally yellow, and if so where is it that we may see it?

A. I have never published it, but I have spoken about this compound with Prof. Stiglitz, Professor of inorganic chemistry of the Chicago University.

Q. Now when did you first make it public that you had discovered a new kind of terpene which contrary to all the terpenes ever theretofore known was yellow instead of clear, turned yellow instead of losing its color by the lapse of time?

A. I made it public, if you call this being public, yesterday.

Q. For the first time? A. Yes, sir.

1512 Q. When did you discover the fact—

A. That it was terpene?

Q. When did you discover the new kind of terpene that started out yellow and loses its color, instead of starting out colorless and taking on yellow as the other proteins, when did you make the discovery?

A. I should say probably a year or possibly two years ago.

Q. Have you your notes from your experiments?

A. I think I could find them at home.

Q. Will you produce your original notes showing the details of your experiments by which you discovered the new kind of terpene that is yellow to begin with, does not resolidify, but loses its color as time goes on, will you produce those notes for our examination?

A. I will try and find them and produce them if you wish them.

At this point the further hearing of this cause was adjourned until 2 o'clock p. m.

Pursuant to adjournment, court met at two o'clock p. m., Tuesday, June 21, 1910, and proceeded further with the trial of said cause as follows:

Dr. John M. Wesner, resumed the witness stand.

The Court: Any further examination, Mr. Butler.

Mr. Butler: I believe not.

The Court: You may reexamine, Mr. Elliott.

1513 Redirect Examination

By Mr. Elliott:

Q. Doctor, I want you to explain to the jury, about the yeast apparently generating nitrites, on the one hand, and consuming them on the other hand. Now, take this Claimant's Exhibit 227. I believe you have testified that the nitrates that are in the water, are reduced to nitrites by the yeast. Is that correct?

A. That is true.

Q. And that, when the Griess reagent was put on there, it gave the coloration. A. That is true.

Q. Now, I will ask you this: assuming that you had allowed the yeast to act on that for a longer time than you did, what would have occurred?

A. The nitrite would have all been consumed by the yeast cell. The nitrite produced from the nitrate by the yeast is due to the enzyme, which each yeast cell contains, and this enzyme, which is secreted by the yeast cell, acts upon the nitrates, and makes nitrite. Then, the cell lives upon the nitrite, as food.

Q. So that, in this exhibit, 230, we then have, in this colorless fluid, as I understand it, an illustration of where the yeast has consumed the nitrites.

A. That is true.

Q. Mr. Butler put to you several questions, in relation to doses of nitrites. I want to ask you what relation, in your judgment, these medicinal doses of nitrites have to any substance in this flour in suit.

A. No relation whatsoever.

Q. I will ask you if you ever saw any flour that had been made yellow by being treated by this Alsop process.

A. No flour that has come to the Columbus laboratory for examination has ever been yellow, or made yellow by the gases from the Alsop process.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: That is not the question, Doctor.

1514 Mr. Elliott: I will repeat the question.

Q. My meaning is this: there has been some testimony that flour remaining in these agitators, after exposure for some length of time, turns yellow. Now, I am not dealing with that. I mean flour, as it has been passed through the agitator, as it is treated in the mill. Have you ever seen any flour, so treated, that was turned yellow by this Alsop process? A. I have not.

Q. I will ask you, Doctor, if, in determining the question of the poisonous properties of a substance, if you are influenced in coming to a conclusion, by the fact that such substance occurs normally in the human body. Would that be one of the factors?

A. That would be one of the factors to consider.

Q. Now, Mr. Butler made some remark to you, in reference to this corn starch case, that has bobbed up here once or twice, to the effect that you were fighting the commonwealth of Pennsylvania. I will ask you if Dr. John Marshall, who

testified for the government testified on the same side of the case as you did, in that case. A. He did.

Q. I will ask you, as long as the subject has been brought up, if it isn't a fact, as a result of the testimony brought out by the defendant in that case, that the attorney for the state himself asked the court to direct the jury to bring in a verdict for the defendant.

Mr. Butler: Just wait a moment. That is objected to as not proper examination, and especially for the reason that it appears that the question of injuriousness of nitrites was not up, and Marshall expressly said that he declined to testify in that case, at all, because he thought they were injurious. Now, they happened to be on the same side, but the result of that case, would not be material; and I further object to the assumption that I said that to Mr. Wesner. He plainly said that he was fighting the commonwealth of Pennsylvania.

The Court: Oh, I recollect very well what Dr. Marshall testified.

Mr. Butler: He injected that. He injected Marshall.

The Court: Dr. Marshall told us expressly what he testified to there, and that he would not have testified to the contrary to what he testified here.

Mr. Elliott: I am not bringing that out, for a moment.

The Court: Well, just a moment. You might just as well. Then, if you ask this question, we have got to investigate the issues upon which that case was tried, and then determine whether it was decided right or not. There is no such issue there, as here. This objection is sustained. No such issue there, at all.

Mr. Elliott: Your Honor did not give me an opportunity to say a word.

Mr. Scarritt: I want to make this objection, if Your Honor please. The question was, to Dr. Wesner—

The Court: (Interrupting) The question is that Mr. Elliott is seeking to get this jury to believe that the government was defeated in Pennsylvania, and, therefore, this jury ought to so find.

Mr. Elliott: Not at all.

The Court: Well, just a moment, please. This question is very objectionable, offensively so. Objection is sustained.

Mr. Scarritt: We object and except to the remarks of the Court, and except to the ruling of the court.

The Court: We are not going to try such a fake issue as that.

1516 Mr. Scarritt: He asked him, if Your Honor please, if he was not down there fighting the commonwealth of Pennsylvania.

The Court: This objection is sustained. That is a false issue, that that question would seek to raise, here.

Mr. Scarritt: No doubt about it.

The Court: No such issue is before this jury.

Mr. Scarritt: We did not raise it.

By Mr. Elliott:

Q. Doctor, in bread making, I will ask you, is acid formed by fermentation?

A. Acid is always formed by fermentation, as a necessary step in the process of making bread. The acid acts upon the gluten, and gets the gluten in good condition, so as to make a good loaf volume, and bring about a greater resiliency to the gluten. Sometimes mineral acids are added, in order to bring about this rapid change in the gluten.

Q. Now, I asked you, on your direct examination, as to whether you had discovered or ascertained if any change was brought about in any constituent of the flour, by this bleaching process, and I understood you to answer no, and then Mr. Butler read to you several quotations from things you have said, or which was alleged you had said, in which you stated generally, certain things. I will ask you if there is any inconsistency between those two statements.

Mr. Butler: That is objected to as incompetent and immaterial.

By Mr. Elliott:

Q. I will ask you to explain those two statements.

The Court: I think the question is just calling for an explanation, about it. You may answer.

The Witness: Read the question.

1517 By Mr. Elliott:

Q. I will ask you to explain those two statements.

A. I find no inconsistency in those statements, the only change, as I have said right along, of any constituent in the flour which has been bleached, is in the coloring matter which has been changed. The gluten, and the other constituents in the

flour, are not changed. Of course, by passing flour through an agitator, and air coming in contact with the flour, a certain amount of moisture is eliminated, but that is not a change in any constituent of the flour. That is simply taking out some of the water. The only change is in the coloring matter, in that flour.

Q. And in naturally aged flour, does the same change occur?

A. The same change takes place,—loss of water, and the change in the coloring matter, which is a change, of course, in one of the constituents of the flour.

Q. I have understood from those quotations and excerpts from remarks, or testimony you have given, that you are on record as stating that bleaching produces the same change that aging does. I will ask you if that is your present opinion.

Mr. Butler: We object to Mr. Elliott's recital of his interpretation and understanding of the proof, and we object to that question particularly because it is leading.

The Court: Well, it is leading, but, nevertheless, he may answer.

(Last question read by the reporter)

A. It is my present opinion.

By Mr. Elliott:

Q. Now, Mr. Butler has interrogated you in reference to this flour that was exposed in your kitchen, and as to the possible volume of air that was used, or that would be necessary
1518 to be brought in contact with that flour, to produce four parts per million of nitrite nitrogen. I want to ask you how long did you expose that flour in your kitchen.

A. That one was exposed about two weeks. Two weeks, and other flours that I have exposed for twenty-four hours, have taken up as high as one part nitrite nitrogen in a million.

Q. You were asked about ammonium nitrite. I will ask you if, in your opinion, there is any ammonium nitrite in flour.

A. Not as far as I know.

Q. Is ammonium nitrite a volatile substance, easily volatile, or not?

A. No, it is not very easily volatile. It is a solid, at a low temperature, and a liquid at other temperatures, I believe.

Q. Now, I understand from Mr. Butler, he has been trying to bring out by you and other witnesses that this process introduces a poison into flour. Now, I will just ask you to assume that it does, and, on that assumption, I will ask you if, in your opinion, nature, on exposure of the flour to air, would introduce the same substance into the flour.

A. It certainly would do that, or does do that.

Q. You have also been interrogated at length in reference to the presence of poisons, in this N_2O_3 material, in the gas of the Alsop machine. I will ask you if it is a fact, well known in chemistry, that two substances may be together in what is called a state of dissociation. That is well known, is it?

A. Yes, sir.

Q. Take this nitrous acid gas. I will ask you if that has ever been isolated, as such. A. Not to my knowledge.

Q. Now, I want to ask you to further assume that the air passing through this Alsop machine, and treated by this electric discharge, is, or contains a poisonous gas. Just assume that. Does that fact have any bearing on the poisonous character of any compound or substance which may be found in the flour, as result of treatment with that gas?

1519 A. It would not have any bearing on any substance or compound formed in the flour with this particular gas, by the Alsop machine.

Q. Chemically speaking, would it be possible to take a perfectly harmless gas, and treat this flour with it, and produce poisonous compounds in it, on dissociation occurring?

A. Well, I don't know whether that would be possible or not. It might be.

Q. I just say chemically,—theoretically.

A. Yes, I would not say it would not be?

Q. Theoretically?

A. I would not say it might not be possible. It might be.

Q. And theoretically, it would be possible to take a poisonous gas, and have compounds from it, that were perfectly harmless, would it not? A. Absolutely so, yes, sir.

Mr. Elliott: I believe that is all.

Recross Examination

By Mr. Butler:

Q. What harmless gas will poison flour?

A. I do not know of any, right off-hand.

Q. What poisonous gas will not poison flour?

A. Well, N_2O_3 .

Q. That is a poisonous gas?

A. That is, in sufficient concentration, it is a poisonous gas, but, in mild concentration it is not that. That would produce a harmless compound.

Q. What other poisonous gases will not poison flour?

A. Well, chlorine gas, in concentration, is a poisonous gas, but, in a diluted condition, it would not be a poisonous gas,

and that, however, would also make a harmless compound with the coloring matter of the flour.

Q. Can you name a poisonous gas that will poison flour?

A. I cannot, no.

1520 Q. So, no poisonous gas will poison flour, but harmless gases will poison flour, but you cannot think of which harmless gas will do it. Is that a fair statement of your testimony?

A. No, I do not think that is a fair statement.

Mr. Elliott: I understood him to say he could not name one, on the moment.

Mr. Butler: Well, that is what I say.

Q. What is the name of the enzyme in yeast, which reduces nitrates to nitrites?

A. I do not know as that enzyme has ever been named, but Professor Buckner, a German scientist, has extracted an enzyme which will convert sugar into alcohol, and carbon dioxide, without any live yeast cell figuring on the reaction.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: Yes. That is not responsive.

By Mr. Butler:

Q. Do you know the name of the enzyme which you say will reduce nitrates to nitrites?

A. I do not know the name, but I know it is the enzyme in the yeast that does it.

Q. Can you cite me to any authority which says that enzymes in the yeast change nitrates to nitrites. I mean, any published text book, or work. I do not mean anything that some of these witnesses have gotten up, to advertise bleached flour. A. I am the authority on that statement.

Q. You are the only authority known?

A. Yes. I can prove it to you, right here.

Q. I propose to take your word for it, if you say you are the only living man who knows that.

A. I do not say I am the only living man, but I am one of the authorities, because I have proved it myself.

Q. All right. State in detail your proof, scientifically, chemically, now, so that any chemist will know it, so we will have another addition to the chemical learning of the world.

1521 A. Thank you.

Q. To put along-side of the discoveries of the new kind of terpene.

A. Thank you. You are very complimentary, and I assure you I appreciate it. If you take the live yeast cell, and grow it upon nitrates, it would reduce them to nitrites. If you take that same live yeast cell, and stop its growth, with chloroform, and add nitrates in there, the cell does not develop any nitrites. It stops. The enzyme in that yeast cell will change the nitrates to nitrites. That is pretty good proof.

Q. And the same cell will change, and will destroy the nitrites?

A. If the cell is alive, it will eat up the nitrites, or destroy them. I think they feed on them.

Q. That is, this cell eats nitrites?

A. I think it is good food for the yeast cell.

Q. Is there any authority that you know of, aside from yourself, which says that nitrites are, as such, consumed by the yeast cell?

A. Well, I think if you will take the culture media, probably, of Louis Pasteur, you will find that the way he fed his yeast cells—

Mr. Butler: (Interrupting) I move to strike that out as not responsive to the question.

The Court: No. Answer the question, please.

A. (Continuing) I do not know whether Louis Pasteur said, as such, that the nitrites—or, said in so many words, that nitrites were food for the yeast, but I know he has fed mixtures of that kind, for yeast.

Mr. Butler: Wait a moment. I move to strike out the answer, as not responsive.

Mr. Scarritt: I object to it being stricken out, if Your Honor please, because it is responsive.

The Court: Well, now Doctor, go on and make your own explanation, and then go back to the question which, to me, is a very simple one. John Smith, or Richard Roe, wrote such a book, or nobody did. John Smith, or Richard Roe is an authority for that, or they are not.

Mr. Scarritt: Or somebody demonstrated it.

The Court: No, that is not the question. Some man living, or dead is or is not an authority.

Mr. Scarritt: Well, the question is unfair, then, if it does not include that, in the answer.

The Court: Well, let him say he cannot answer it.

A. (Continuing) I cannot say, in just so many words, just now, whether he did that exact thing, that yeast would live of

nitrites, but, I know that certain culture media used by Pasteur contain such body, and were put in there for the purpose of food for the yeast cell, and now, whether he says, in so many words, that those are foods for the yeast cell, I cannot say. I do not remember. He may have said it. That is the best answer I can give.

Q. Do you say that the yeast cells consume nitrites, directly, as such?

A. That would be my opinion, so far as I have gone in that work, Mr. Butler.

Q. Do you say that to be the fact and truth?

A. I would not say that is the absolute fact, but that is my opinion.

Q. You would not say that is the absolute, established truth, would you?

A. I could not say that, because there might be some other lower nitrogen compound formed.

Q. Do you know any man, living or dead, who has ever said—I mean an authority,—who has ever said that the yeast cell, directly consumes nitrites, as such?

A. I can only answer that as I have already answered it, to your first answer.

Q. Can you answer it yes or no?

A. I could not think of answering it that way, because it is impossible. It is impossible.

1523 Q. Now let me see if I understand the situation. I asked you if you can name any man, living or dead, who is an authority in chemistry, who has said, as a chemical truth, that the yeast cell directly consumes nitrites as such, and you say you cannot answer that question yes or no, do you?

A. I answer that question, now—I do not recall any at this time, but I believe I could find some authority that would say that.

Q. You cannot do that, now? A. I do not recall any.

Mr. Butler: That is all, Dr. Wesner.

Witness excused.

John E. Burgner, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. State your full name. A. John E. Burgner.

Q. What is your occupation? A. Practical miller.

Q. At what place? A. North Platte, Nebraska.

Q. How long have you been a miller, Mr. Burgner?

A. Thirty-five years.

Q. What is the capacity of your mill?

A. One hundred and fifty barrels in twenty-four hours.

Q. Do you use an Alsop bleacher in that mill?

A. Yes, sir.

Q. How long have you been using it?

A. It was installed in August of 1904. It will be six years in August.

Q. Six years this coming August? A. Yes, sir.

1524 Q. I will ask you, Mr. Burgner, if you have ever noticed the color of the gas, or gaseous medium coming from this Alsop machine. A. I have noticed the gas.

Q. Have you ever seen any color in it?

A. Not that I could describe as color, no, sir.

Q. I will ask you if there is any pressure in any pipe coming from this Alsop machine. A. Practically no pressure.

Q. I will ask you if you have ever smelled flour treated by this Alsop machine, to ascertain if there was any odor in it, and if so, with what results.

A. I have. I have never been able to detect any odor in the smell of the flour.

Q. Where is this Alsop machine located in your mill, with respect to the agitator? How far from it?

A. About eighty feet.

Q. About eighty feet? A. Yes, sir.

Q. And what connects that with the agitator?

A. We have a two-inch galvanized iron gas pipe, wrought iron, with the exception of about two feet of rubber hose.

Q. Now, have you made any change in those pipes from the time that machine was first installed, up to the present time?

[Q]. We have not.

Q. Have you a sample of that iron pipe? A. Yes, sir.

Q. Let us have it, please.

The witness produces a pipe, which is marked "Claimants' Exhibit 240".

Q. I will hand you Claimant's Exhibit 240, and ask you if that is a section of the iron pipe you referred to. A. It is.

Q. What part of the apparatus did that pipe come from?

A. It came out of the electrifying room, about eight feet from the electrifying machine.

Q. About eight feet from the electrifying machine?

A. Yes.

Q. Do you use one of these tanks in yours?

A. Yes, but that is at the other end of the line.

1525 Q. This is between the electrifier and the tank?

A. Yes.

Mr. Scarritt: How long did he say that had been in use?

The Witness: Six years, in August.

By Mr. Elliott:

Q. Now, have you a piece of that rubber pipe you have referred to? A. I have.

Q. Now it is suggested that I ask you if the other pipe, of which that is a piece, as I understand it,—does that represent the specimen? A. Yes, sir.

Q. And would that, to your own knowledge, represent the condition of your pipes? A. Yes, sir, it will.

Q. Now, take this rubber pipe, which is marked "241". I will ask you what part of the machine this pipe comes from.

A. That is in the electrifying room, adjoining onto that short piece of pipe, which would be about four feet or six feet from the electrifier.

Q. And tell me why you use rubber pipe, at all.

A. To comply with the insurance requirements, as a matter of safety, from carrying any electricity up the main pipe.

Q. How long has this rubber pipe, Exhibit 241, been in use?

A. It will be six years in November.

Q. Now, I call your attention to some discoloration on the outside of that pipe, and ask you if you can explain what that is due to. A. I can.

Q. What is it?

A. This is oil. That is located so it comes directly under a shaft, up here, and little drippings, up here, falls onto that.

Q. Now, the gas from the Alsop machine passes right through this rubber pipe, does it? A. Yes, sir.

Q. And has been doing it for—

A. (Interrupting) Will be six years in November.

Q. I hand you a valve marked "Claimants' Exhibit 1526 242", and ask you to state what that is.

A. That is a valve that is used, about three feet from the agitator, between the tank and the agitator, for regulating the flow of the gas to the agitator.

Q. How long has this valve been in use?

A. Six years in August.

Q. All of these three exhibits have been in use substantially six years?

A. With the exception of the rubber, that was put in in November, later. When we first put the plant up, we put the pipe solid, and the insurance inspector came along, and requested us to put in that piece of pipe, in there.

Mr. Elliott: The exhibits are offered in evidence.

Q. Mr. Burgner, why do you bleach your flour?

A. To make it whiter, and gives better satisfaction to the trade.

Q. Now, just explain to the jury what you mean by giving better satisfaction to the trade.

Mr. Butler: I think we will object to that as irrelevant and immaterial, and move to strike out his answer,—that part which says “Gives better satisfaction to the trade”; as not germane to any issue formed by the pleadings in this case.

Mr. Elliott: The Court, itself, asked a gentleman here, “Why do you bleach the flour”, and I want to bring out from this witness his reasons, if any.

The Court: He may answer that.

By Mr. Elliott:

Q. What do you mean by giving better satisfaction?

A. Well, I do not know that I can explain how it gives better satisfaction, but it does. People getting it—

Mr. Butler: (Interrupting) Just wait a moment. I think I will object to any hearsay narrative.

The Court: Oh, yes. We are not going into that.

1527 By Mr. Elliott:

Q. I will ask you if, in your judgment, flour is improved by bleaching it, and if so in what manner.

A. From my judgment, it is, to the extent that it gives them the same—puts it in the same condition that about ninety days of natural aging does.

Q. Now, Mr. Burgner, suppose you should take flour, ground from a new wheat, and bleach that flour—that new flour. Now, I want to ask you, how will that bleach flour, in your judgment, compare, in quality, with the same flour that might have been aged for, say ninety days, as you have expressed it?

A. It would compare very favorably. About the same.

Q. Now, before this flour is bleached, and when it is new, is it usable? Is it satisfactory to use by the baker, or housewife? A. No, it is not.

Q. And, after it is bleached, what then? A. It is.

The Court: I do not want to be misunderstood about a ruling a moment ago. Just let me ask a question.

Q. Do you brand your flour as bleached? A. No, sir.

Q. Do you let the people know it is bleached?

A. We do. We do not in any manner conceal it.

Q. Well, common people, like myself, going to the grocery store and buying it,—would they know it was bleached?

A. It does not say it was bleached on the sack.

Q. Do you advertise it as bleached?

A. No. I do not think we do.

Q. If it makes it better, why don't you advertise is as bleached?

A. Well, it has not been necessary to do it. The demand for it is sufficient.

The Court: Go on.

By Mr. Elliott:

Q. Have you ever had any dough balls in your flour?

A. No.

1528 Q. Do you know what they are? A. I do.

Q. Have you ever had any of them in your flour?

A. I have never had any that was to be attributed to the bleaching.

Q. No—I just asked you if you had ever had any dough balls in your flours, irrespective of bleaching, at any time?

A. No.

Q. What was your answer? A. No.

Mr. Helm: I did not get his answer.

Mr. Elliott: He said no.

Mr. Butler: He said no.

By Mr. Elliott:

Q. Now, I will ask you if you have made tests on bleached and unbleached flour, by means of baking. A. I have.

Q. And, comparing the loaf made from an unbleached flour, to a loaf made from the same flour, bleached, or from a bleached flour. Tell me, first, if, in your judgment, there is any difference in the odor between those two loaves.

A. After they are baked?

Q. Yes. A. No. I never could detect any.

By Mr. Butler:

Q. No difference in the odor after baking. Is that it?

A. In the bread.

By Mr. Elliott:

Q. Is there any difference in odor, in the flavor of the bread? A. Never could detect any.

Q. Is there any difference in the loaf volume?

A. I never perceived of any. I never weighed them, or measured for that.

Q. You stated that there was no difference in odor, before baking.

Mr. Butler: After baking?

By Mr. Elliott:

Q. After baking. Did you mean to imply by that, that there was a difference in odor before baking.

1529 A. No, I did not.

Q. Now, do you eat this bread, from bleached flour, yourself? A. I do.

Q. Do you use it in your family?

Mr. Butler: Oh, I think I will object to that as irrelevant.

Mr. Elliott: I think it is well enough to know that a man has the courage of his convictions.

Mr. Scarritt: That is the best test you can have.

The Court: No, that may or may not be so. I do not know about that. I may have been drinking milk, for years, loaded. Perhaps I have, but I am a tolerably robust man, yet. That would not be proof that formaldehyde was not harmful. I sustain the objection.

Mr. Scarritt: We save an exception.

Mr. Elliott: That is all.

Mr. Scarritt: Now, I do not quite understand that. Does your Honor rule that we cannot show that people use this bread, and eat this bread universally?

The Court: Do you think, Judge, that I ruled on that?

Mr. Scarritt: Well, I am just getting at it.

The Court: I say, do you think I ruled on that?

Mr. Scarritt: That was my understanding of it.

The Court: Well, you are mistaken. This is soon after dinner, you know, and the mind is not always active.

Cross-Examination

By Mr. Butler:

Q. Mr. Burgner, have you been a miller long, at North Platte?

1530 A. About nine years.

Q. How far west of the Missouri River is North Platte?

A. About three hundred miles. In that neighborhood.

Q. What is the annual rain-fall of that country, do you know? A. No, I do not.

Q. Well, I understand that, in some parts of Nebraska, far to the west, the rain-fall kind of peters out, and is pretty light.

A. That is right, some years, and others, it is different. This year, it has been heavier out there than it has in the eastern part of the State.

Q. But you are getting into the semi-arid region?

A. Yes.

Q. The North Platte region, I believe, is considered in the semi-arid country. A. Yes, so considered.

Q. What horse-power do you use to make this bleaching gas?

A. I do not know. We have no indicator, to indicate it.

Q. What is the horse-power of the equipment?

A. Five-horse-power dynamo.

Q. And the capacity is one hundred fifty barrels a day.

A. Yes, sir.

Q. If you run twenty-four hours? A. Yes, sir.

Q. About twelve barrels an hour? A. No.

Q. About six? A. About six.

Q. About six barrels an hour, and you are equipped with a dynamo of five horse-power, to make gas to bleach five barrels of flour an hour? A. Six barrels.

Q. Six barrels of flour?

A. But we do not use all of that.

Q. No, but you do not know how much you use?

A. No, I do not.

Q. Do you bleach all of your flour?

A. We do. That is, all the patent flour. We do not bleach the clears.

Q. Your clears contain such impurities that they cannot be bleached and mixed with the patent. Is that it?

A. We do not mix them. We do not mix our clears.

1531 Q. What percentage of clear do you make?

A. From about ten to fifteen.

Q. What brand do you sell it under?

A. We simply say no brand, or first clear. That is, it is put into jute sacks, mostly that way, unbranded, and sold as first clear,—clear flour.

Q. Did any of your customers ever come to you and ask you to bleach the clear, for them, to see if it would improve it?

A. Not to my knowledge.

Q. Any of your customers, who are consumers, come to you and ask you to bleach the patent for them, so it would make it better? A. Who are consumers?

Q. Yes.

A. Well, supposing the buyers—the people,—the merchants are, I would answer yes.

Q. Well, you would understand the difference between a flour broker, or a flour merchant, and a consumer, wouldn't you? A. Well, he is also a consumer.

Q. Now, except some one who was in the business of selling flour, did anybody ever ask you to bleach the patent, to make it better? A. No.

Q. What proportion of the time do you run your mill?

A. Well, we do not run—I stated that this machinery was shut down for four months, when it was moved. It was moved a half a mile. It was not in operation at that time, and it is not run continuously. It runs—it is in operation, perhaps two-thirds of the time, in the day time.

Q. In the last five years, have you averaged two-thirds of the time—that is sixteen hours out of twenty-four, on the average?

A. No, I said two-thirds of the day time.

Q. Two-thirds of the day time? A. Yes.

Q. That would be about thirty per cent of all the time?

A. I presume it would.

Q. Wouldn't it?

A. I have not put it into percentage, in that way.

1532 Q. What was your annual output, in barrels?

A. I do not know, now. I have not the figures with me.

Q. You haven't the figures with you? A. No, sir.

Q. How many barrels of flour did this pipe, which is marked "240", conduct the bleaching gas for?

A. I could not answer that, definitely.

Q. Have you any pipe here, that was near the agitator?

A. That valve was near the agitator.

Q. How near the agitator? A. About three feet.

Q. About three feet from the agitator? Are you interested in the Alsop Company? A. No, sir.

Q. Now, let me understand. Could you stop bleaching, if you wanted to, without tearing down your mill?

A. Without tearing down the mill?

Q. Yes. A. In what way do you mean?

Q. Dismantle your mill. Somebody told this jury they would have to dismantle the mills, to stop bleaching. Is that right? A. Oh, no.

Mr. Scarritt: I object to that, if Your Honor please, there is no such evidence as that, at all, and ask that it be stricken out.

Mr. Butler: Didn't counsel tell that to the jury?

Mr. Scarritt: You said it had been testified to.

Mr. Butler: No, I said somebody told this jury that.

Mr. Scarritt: Well, you assumed that some witness had told them.

Mr. Butler: No, I did not. Counsel told the jury that they would have to dismantle the mills, to stop bleaching. I want to find out if this is true, according to this man's experience.

The Court: He may answer.

By Mr. Butler:

Q. Is it? A. No.

1533 Q. All you would have to do, is to stop your gas maker, isn't that all? A. Take the belt off.

Q. That is all you would have to do, take the belt off, and save the power consumed in making the gas. Isn't that true?

A. Yes.

Q. Can you give this jury any idea of how many barrels of flour were bleached by the gas that passed through that rubber hose, which is marked "241"?

A. No, I could not. That is, no definite answer. There was two years that the mill ran sixteen to eighteen hours a day, steady.

Q. Now, have you found out that there is some heat generated by this flaming arc?

A. Yes, there is some heat.

Q. Have you found out that the air and gas, mixed together, when it is going through the hose, is hotter, and drier, than it is after it has been through the holder, and going for eighty feet to the agitator. Have you found that out, yet?

A. Yes, it is a little warmer.

Q. Have you found out, yet, that it requires water to make nitric acid out of this gas?

A. I have not. I am no chemist.

Mr. Elliott: I object to this, Your Honor. This witness has not qualified as a chemist.

The Court: No, he does not know.

Mr. Butler: All right. He has not found that out, yet.

Q. Before you get your bleacher, did your patent flour give satisfaction? A. Fairly well.

Q. Well, what I am trying to get at, did it give satisfaction?

A. Well, the very fact that we put the bleacher in, is evidence that it did not, fully.

Q. Oh, that is evidence? Well. Now, Mr. Elliott asked you about new flour. Is new flour inferior to what it will become if you age it?

A. It is not colored, as well.

Q. It is inferior, isn't it, in bread-making qualities?

A. Yes.

1534 Q. When you age it, it gets whiter, doesn't it?

A. Yes.

Q. Without bleaching? A. Yes.

Q. When you bleach it, you make it look like the aged flour, don't you? A. We do.

Q. You make your flour, made from the new wheat, that has not been conditioned, look like flour made from the wheat that has been conditioned, don't you?

A. Make it work like it, too.

Mr. Butler: I move to strike out that answer.

The Court: Yes, that is stricken out.

By Mr. Butler:

Q. You make it look like it, don't you? A. Yes.

Q. You make a long patent look like a shorter patent, don't you?

A. Not by the aid of the bleacher, necessarily, no.

Q. A long patent is darker colored than a shorter patent, isn't it?

A. Well, sometimes. That depends, altogether on the skill of the miller, and the equipment of the mill.

Q. Well, usually, isn't it? A. Yes, usually.

Q. So that, by a blast of this air, from this gas generator, you can reduce the color of that, somewhat, can't you,—of your long patent,—and make it whiter? A. Reduce the color.

Q. Yes. When I say reduce the color, I mean make it whiter. A. That is what we bleach it for.

Q. That is what you bleach it for, isn't it? A. Yes, sir.

Q. And you can adjust that, the more you bleach it, the whiter it gets, until you ruin it, doesn't it?

A. I could not answer that.

Q. Haven't you found out, yet, that the more gas you use, the stronger it will bleach? A. I have never ruined any.

Q. Oh, no, but you have found out, haven't you, that a little gas will bleach a little, and more gas will bleach a little more, and so on. Have you found that out?

A. To a certain extent, yes.

1535 Q. So that the miller may adjust the shadings of his color, to a certain degree, by this bleaching?

A. To a certain degree, yes.

Q. That is what you bleach for, isn't it? A. Yes.

Q. And it often becomes a matter of great delicacy, does it not, to determine just what shade of color it ought to be bleached to, and in order to do that, you have to slick it down, and compare it with the unbleached flour, or some standard, don't you? A. I have never had that experience.

Q. That has not happened in your mill? A. No.

Q. Some wheats make lighter flour than others?

A. Yes, sir.

Q. And, if you take a wheat that makes a dark colored flour, and bleach that flour, you can make that flour look about

as light as the flour made from the other wheat, which makes the lighter flour, can't you, in color?

A. State that question again, please.

Q. I will try to state it a little more clearly. Let me ask you this question. Do you know yellow berry? A. I do.

Q. Does that make as white a flour as the turkey red, that has no yellow berry in it? A. No.

Q. So, then, let us take yellow berry. It makes a little darker colored flour than the wheat that is free from yellow berry, doesn't it,—wheat of the same kind?

A. Well, that is absolutely free?

Q. Yes, that is what I mean. A. Yes.

Q. Now, if you make flour from yellow berry, you bleach it, and it gets white, too, doesn't it? A. Yes.

Q. And, if you bleach it just right, you can make it like, or very near like flour that is free from yellow berry—flour made from wheat free from yellow berry, can't you?

A. Yes, I think I can.

Q. So that, generally speaking, this bleaching may be so used as to make the flour from new wheat look like the flour made from old wheat; make the flour made from yellow berry look like the flour made from wheat free from yellow berry. Am I right? A. Yes, sir.

Q. And generally speaking, to use Dr. Wesener's expression, it standardizes the color, and makes the same color practically all over, attach to all kinds of flour, made from varying kinds and conditions of wheat. Isn't that true?

A. In a sense that is true, yes.

Q. Well, I mean in a sense. But, in the sense of color, that is true? A. Yes.

Q. You do not mean to say that, of course, if you took this Durum, that is used for macaroni, that you could make the same kind of wheat flour, with the aid of the Alsop bleacher, as they made from the nice, soft, winter, pastry flour-making wheats of Southern Missouri?

A. I do not know. I never ground any.

Q. You do not think you could do that, do you? You could not make the same texture, could you?

A. I never tried it. I never ground any Durum wheat.

Q. It does not change the texture of the flour, does it?

A. What?

Q. This bleaching gas.

A. I have never found that it did.

Q. All you have been able to discover about it is, that it changes the color? A. And makes it work better.

Q. Makes it work better? Well, makes the loaf volume bigger? A. Not necessarily.

Q. No, but as a fact.

A. It makes a more flaky loaf, to my mind.

Q. Better flavor?

A. No better flavor. No difference in the flavor.

Q. Do you smell this gas? Mr. Elliott did not ask you that. A. Do I smell it?

Q. Can you smell it? A. I can.

Q. At the place where it is made, if you opened it, so
1537 it can get out? A. Yes.

Q. In the bleacher, where the flour is bleached?

A. Yes.

Q. In the flour bin?

A. You can smell it if you open the door of the flour bin.

Q. Now, what do you think it is? Don't you think that the odor is in the flour? A. I do not.

Q. Well, now, tell me how you think that odor fills the flour bin, without getting into the flour?

A. The flour fills part of the bin, and the space between the flour and the top of the bin, is an air space, and the odor that is from the gas, rises out of the flour immediately, and fills that space.

Q. You are familiar with the smell of the gas that you get at the agitator or at the generator?

A. More so, at the agitator.

Q. Because that can be opened, I understand? A. Yes.

Q. Now, is that the same kind of gas that you smell, where the gas is made—same smell, I mean?

A. I could not answer that.

Q. You never noticed any difference, did you?

A. Where it is made, it is piped through. There is no opening in the pipe, and it is hard to get that, very often.

Q. You do get it, in the bin, every day you go in there?

A. Yes.

Q. Now, is it the same smell at the agitator, that you find in the bin? A. Yes, because they are very close together.

Q. Then, as I understand it, this flour, when taken in the hands and brought to the nose, does not give off the odor?

A. That is my idea.

Q. But, when the bin is about full of flour, that mass of flour, fills the rest of it? I do not mean more strength,
1538 but enough so you can smell it? A. Yes, sir.

Q. So then, it seems to you, does it not, from your practical observation, that this bleached flour, when found in a large mass in a comparatively small bin, does give off enough of this kind of gas that you smell in the agitator, so that you can smell it? A. Yes.

Q. So, you would say you would know, as a practical man, observing this from day to day, that this bleached flour, when

enclosed in a bin, does give off some small amounts of the bleaching gas? A. In the bin.

Q. In the bin? So that, if you would put it in a car, it would give it off in the car, wouldn't it? I mean, if you filled the car up and kept it tight?

A. If you would run it directly in the car from the agitator?

Q. Yes.

A. Perhaps it would, if it could not get away.

Q. Now you think it would not be strong enough to smell it, out of the sack? A. Oh, no.

Q. So, your idea is, that all of this gas escapes in the flour, in the bin? A. That is my idea exactly.

Q. And you know that it does escape?

A. I have never been able to smell any in the flour, and I have made many tests.

Q. But you know it does escape in the bin, which is the same old gas as you smell in the agitator? A. Yes.

Mr. Scarritt: I object to that as repetition.

Mr. Butler: I wanted to be sure there was no mistake about it.

Q. Did you ever try to bleach flour with the gas that is taken from the bleached flour? A. No, sir.

Q. Now, did you ever take a sample of flour that was 1539 not bleached, and make a loaf of bread of it?

A. I did.

Q. Then, did you take the same flour, not bleached, and wait for three months, and make a loaf of bread of that, and compare the two? A. No.

Q. Did you ever make any similar experiment?

A. I have baked the flour that was made—it was the same flour, but not the identically same flour—at the end of three months, and made the experiment.

Q. Does it make better bread at the end of three months, if you do not bleach it? A. It does, and it—

Q. (Interrupting) Makes a bigger loaf?

Mr. Scarritt: Wait a minute. And what?

The Witness: What is that?

Mr. Scarritt: You started to finish your answer.

The Witness: You asked me if it made better bread?

Mr. Butler: And you said it did.

A. I said it did.

Q. Does it make a bigger loaf?

A. I don't know as it does.

- Q. Does it make a better flavor? A. No.
- Q. In what respect is it better?
- A. Just—whiter in color and lighter in texture.
- Q. Yes? The gluten is better? The dough is better?
- A. It doughs up better.
- Q. If you bleach flour, and bleach it good, so as to give it a good, square bleaching, does it get better, on natural aging?
- A. How is that?
- Q. Does the bleached flour continue to improve?
- A. It does.
- Q. So that, when you bleach flour it continues to improve, just the same as the unbleached flour does? A. It does.
- Q. So that, if you bleached a sample, and you keep it three months, alongside of an unbleached sample, for three
1540 months, they will both improve, step by step, and week by week, and month by month, for the three months?
- A. That is my experience.
- Q. That is your experience? Now, then, when you bleach flour, it takes about thirty seconds to bleach it?
- A. About fifteen.
- Q. Fifteen seconds? Does it improve the equivalent of three months natural aging, as Mr. Elliott and Mr. Wesner call it, the natural bleaching for three months—does it improve in the fifteen seconds just the same?
- A. That is my experience.
- Q. So that you get a double improvement. You put three months' improvement on it in fifteen seconds, don't you?
- A. We do.
- Q. And then in three months more, by natural aging, you put in another like degree of improvement on it, do you?
- A. We do not have it then, usually.
- Q. Well, I know, but if it keeps, somebody has it, if they do not eat it?
- A. If they don't eat it, yes, if it is not consumed.
- Q. Well, does the improvement begin on storage?
- A. I said that it did.
- Q. So that it not only improves when you bleach it, that artificially changes it, in fifteen seconds, equal to three months' time, but it improves some more? A. Yes.
- Q. Improves just as much in those three months' time as it did in the fifteen seconds?
- A. I would not want to qualify as to that.
- Q. Gets it away on and beyond, much better flour than if it was not bleached at all? A. Yes. That is better flour.
- Q. So that you say that this artificial aging is better than natural aging, because it improves it double the amount, don't

you? First, it improves it three months in fifteen
1541 seconds; and then, in the three months' time, it improves just as much as the unbleached flour? That is your say so about that?

A. I say that it improves it right along. The degree of improvement, I cannot say.

Q. No, but as nearly as you can get at it?

A. I cannot qualify as to the degree of improvement that it takes up.

Q. But, in other words, this bleached flour is made better than the flour unbleached, of the same kind, would have become by natural aging?

A. Well, I don't know as to that. There may be a limit.

Q. You think there may be, about this bleaching?

A. Yes.

Q. Well, so do I.

Mr. Butler: That is all.

The Court: Anything further, Mr. Elliott, from this gentleman?

Mr. Elliott: Just one or two questions I want to ask him.

Redirect Examination

By Mr. Elliott:

Q. Where do you get your wheat?

A. In Nebraska, mostly.

The Court: Western Nebraska?

A. Well, some of it. We ship some from Central Nebraska.

By Mr. Elliott:

Q. What wheat do you usually get?

A. We get what grades No. 2 hard winter.

Q. Is that the wheat we have had testimony about here, containing certain percentage of yellow berry? A. Yes, sir.

Q. Now, Mr. Butler has asked you to state, and you have stated, that with this bleaching process you can make
1542 a new flour look like a natural aged flour, make it look like it, and you said you could. A. Yes.

Q. I will ask you if it is like it, in your judgment.

Mr. Butler: Wait a moment. Now, he has testified that it is, in his direct examination, I think, and what is the use of repeating this all, over and over again?

The Court: He may answer it.

A. What was the question?

Q. I ask you if, as a matter of fact, it is like it, in your judgment. A. In my judgment it is.

Recross Examination

By Mr. Butler:

Q. By the way—yellowberry was mentioned in your re-direct examination. Is that a diseased wheat?

A. No, sir.

Q. Is it better than the wheat that is not yellow, of the same type? A. No, I don't—

Q. Or, inferior to it?

A. I don't know as it is necessarily inferior.

Q. Do you belong to this millers' association that met here yesterday and passed resolutions and things about yellowberry? A. I do.

Q. Now, that was spoken of, was it not, as the problem of yellowberry?

A. I went up to the meeting.

Q. All right. You cannot say, on that. Now, I want to ask you this, whether or not farmers desire to avoid yellow berry?

A. I cannot answer that.

Q. Whether millers desire to avoid yellowberry, whether it is considered an objection, an improvement, or indifferent?

A. Not necessarily so.

1543 The Court: Oh, well, is it? Nothing is necessarily so. Is it better or worse, or the same?

Mr. Scarritt: Let him answer it, if your Honor please.

By Mr. Butler:

Q. That is what I am asking, is it better, worse, or the same?

A. We prefer the darker wheat, yes, sir.

Q. You prefer the wheat that does not contain yellowberry?

A. Yes, if we could get it.

Q. Why?

A. Because the flour is naturally a little whiter.

Q. The wheat is a little harder?

A. No. I think the hardest wheat I ever ground in my life, was the yellowberry.

Q. It will make more flour per pound? A. No, sir.

Q. So it is just in the color? A. Yes.

Q. Well, when you have the bleacher there, you can boss that color, can you, and you would just as soon [as] have yellowberry? A. Not necessarily.

Q. With your bleacher you could get it on the same footing? A. On the same footing.

Q. That is what you have a bleacher for, isn't it?

(No response).

Witness excused.

W. D. Vodrie, called as a witness on behalf of the claimants, being first duly sworn, was examined and testified as follows:—

Direct Examination

1544 By Mr. Elliott:

Q. Where do you live, Mr. Vodrie?

A. Omaha, Nebraska.

Q. What is your business? A. Baker.

Q. Are you a practical baker? A. Yes, sir.

Q. How long have you been in this business?

A. 42 years.

Q. Have you a bakery in Omaha? A. Yes, sir.

Q. What is the capacity of it?

A. About 2000 loaves.

The Court: I suppose he means a day?

The Witness: That is the capacity, 2000 loaves a day. I am not baking that much, at present.

By Mr. Elliott:

Q. Now, I will ask you if you ever had experience, Mr. Vodrie, with bleached and unbleached flours, in baking bread?

A. Yes, sir.

Q. What has been your experience as to the working qualities of bleached flour, compared with those of naturally aged flours?

A. Well, they are much about the same, excepting that when the flour is new, the bleached flour works better.

Q. Without referring to any particular kind of wheat, I will ask you this question: What has been your experience as to the working qualities of bleached flour, compared with those of naturally aged flours?

A. About the same, excepting the bleached flour is much whiter.

Q. Now, take a new flour that has been bleached. Now will such a flour compare, in baking qualities, with the same flour unbleached.

A. Much better.

Q. To what extent, Mr. Vodrie, have you used bleached flour, during the past three years.

A. One time, that I know of, there was a man told me that he had cut off some flour at a certain place; I don't know, put something in it.

Mr. Butler: I will object to this as hearsay.

1545 By Mr. Elliott:

Q. You have not understood my question. To what extent have you used bleached flour, during the past three years?

A. Once that I know of.

Q. You do not understand. A. Oh, bleached?

Q. Bleached flour.

A. Why, I have worked it continuously for nearly three years.

Q. That was bleached?

A. Yes; the unbleached I have only worked once or twice.

Mr. Butler: The unbleached flour once?

The Witness: Well, I mean one lot.

Mr. Butler: That is what you mean?

The Witness: Worked a few days out of it.

By Mr. Elliott:

Q. Now, as compared with your experience with bleached flour, what was your experience with the unbleached flour?

A. Well, I made very dark bread.

Mr. Butler: Well, wait a moment. I think I will object to that comparison, as wholly valueless unless there is something besides bleaching shown, it may have been a poor milling.

Mr. Elliott: Yes, and maybe the flour that Mr. Freeman spoke about was made from rotten wheat.

The Court: That goes to the weight of it. Bleached flour may be very much better than some unbleached flour, and vice versa. I do not know about that. At least, I am not saying, go on.

The Witness: Well, the bread was very dark, and I lost a good deal of trade by it; that is all I know.

By Mr. Butler:

Q. What is that?

A. I lost a good deal of trade by that.

1546 By Mr. Elliott:

Q. Have you ever had any trouble of any kind, arising from the use of bleached flour?

Mr. Butler: Objected to as irrelevant and immaterial.

The Court: What kind of trouble?

Mr. Elliott: In his bakery, I mean.

The Witness: No, I have not.

The Court: He can answer that.

By Mr. Elliott:

Q. Now, I want you to state if, in your experience, there is any difference in the odor, between bread made from flour that has been bleached, and bread made from flour that is not bleached? A. No, sir.

Q. Is there any difference in the taste?

A. Not that I can detect, at all. That is what I am careful about.

Q. I will ask you, taking a case of an unbleached flour, have you ever noticed any odor—and, by "odor" I mean unpleasant odor—coming from such a flour, from the oven, and if so, to what you attributed it.

A. You will get that, with either bleached or unbleached flour, if the dough is in a bad condition. It always makes the over sour, and a sour smell comes out, in case any dough that is over matured, it will be sour.

Q. It will give that smell?

A. Sour gas coming from the oven. I guess any baker will know that.

Cross Examination

By Mr. Butler:

Q. Mr. Vodrie, are you interested in the milling business, in any way? A. Not at all.

Q. Have you been a baker a long time, at Omaha?

A. Well, I have been a baker 30 years.

1547 Q. Are you alone in your business, or associated with others?

A. I am alone. I have had my daughter in with me, to some extent.

Q. And the business is carried out under your name?

A. W. D. Vodrie.

Q. Whereabouts in Omaha is your place of business?

A. 213 South 20th.

Q. You were, then, quite familiar with the wheat flours, before bleaching was practiced? A. I guess so.

Q. I understand it to be the truth that flours vary somewhat in color, depending on whether they are made a long patent or a short patent, or from new wheat, or conditioned wheat, or from one kind of wheat, or another kind of wheat. Am I correctly informed?

A. I do not know, because I know nothing about milling.

Q. Oh, you know nothing about milling?

A. Nothing at all about milling.

Q. Is it within your knowledge that a patent flour is generally and broadly speaking, better? A. Better, yes, sir.

Q. Is better flour than the straight? A. Yes.

Q. That, I take it to be because of the color of it, and the quality of the gluten, and gliadin in the flour?

A. No, I do not think so.

Q. Just the color? A. Let me hear that question, now?

Q. I say, I take it that the patent flours are superior flours, because of the quality?

A. Superior because I guess it is—

Q. (Interrupting) The quality of the gluten and gliadin?

A. Yes, a short patent is better than a long patent, yes.

Q. A short patent flour is, as a rule, if it is made from the same wheat, somewhat lighter in color, than a straight flour?

A. I know too little about that.

1548 Q. That would not be within your knowledge, but you know it makes better bread? A. Yes, sir.

Q. You know it makes better bread than the clear flour?

A. Yes.

Q. So, then, other things being equal, a short patent, down to say 50 per cent, is a good deal better flour than a clear flour containing only ten per cent?

A. I don't know much about those per cents.

Q. How does it compare with the clear flours?

A. I have always found it better.

Q. And it is better than the straight flour? A. Yes.

Q. It is better than the 90 per cent patent?

A. I suppose so.

Q. Makes better bread, doesn't it?

A. I think so. I don't know just what. I told you I didn't know anything about those degrees of patent.

Q. Oh, no, I do not mean to bind you down to any per cent, but a short patent, makes a better bread?

A. What millers term a "short patent", always makes better bread.

Q. Yes? It is a better colored flour? A. Yes.

Q. It is a better colored bread? A. Yes, a better color.

Q. A better grain, better mixture, better crumb, as they call it? A. Yes, and a little richer taste, too, I guess.

Q. If you were just going on the color, the bread, perhaps, will be as heavy, and all that, but it won't have the same fine touch, or taste, or color, or flavor, will it?

A. I suppose not.

Q. And that is true, in handling the doughs? You handle them, yourself, or have, during your younger years?

A. I have handled them. I stand over it, and I know how it is handled, all the time.

Q. Now, is it your idea that this bleaching makes a clear a patent? A. Makes a clear patent?

Q. Yes.

1549 A. It makes a flour that is white; makes a white loaf of bread, that the people prefer, to any other.

Q. Aside from the color, does this bleaching make patents out of clears? Is it your idea that this bleaching makes patent flour out of clears?

A. I would not think so. I do not know anything about that. I do not understand the bleaching process. I know with bleached flour I get bread that satisfies my customers better. They want the white bread.

Q. Now, when wheat is new, right from the harvest, the flour is not quite so nice, is it?

A. It has been very poor, always, until the last few years.

Q. But, if it ages, it gets so you can work it?

A. Yes, after aging, it will get better, of course.

Q. Now, I understood, in your answer to Mr. Elliott, that, taking flour that was new, but bleached—

A. (Interrupting) It works perfect.

Q. It would work just the same as the flour that was naturally aged? A. Yes, sir, it will.

Q. But that it would be very much whiter?

A. I did not say very much whiter. I say the bleached flour is very much whiter than the other.

Q. You said that bleached flour was much whiter than the naturally aged flour.

Mr. Scarritt: No.

Mr. Butler: He did so say.

Mr. Scarritt: No,—than the other flour.

Mr. Butler: Is that the truth?

A. I said that the bleached flour, new flour, it would work perfect.

Q. I am talking about the color. You said bleached flour was whiter than naturally aged flour? A. Yes.

Q. Before bleaching came in, a short patent would be whiter than the straight? A. Why, yes.

1550 Q. A naturally aged flour would be whiter than the fresh flour, made from the wheat? A. Yes, sir.

Q. The straight would be whiter than the clear?

A. All new flours?

Q. All new flours.

A. The straight would be whiter than the clear?

Q. Yes.

A. Oh, you mean the patent would be whiter than the straight?

Q. Than the straight, yes. A. Yes.

Q. And the straight whiter than the clear? A. Yes.

Q. Now, by bleaching it, the color does not indicate anything as to whether it is a patent?

A. All I know about it is making the bread. It makes the bread whiter.

Q. And you know that the bleached flour is whiter than the naturally aged flour? A. I suppose it is. I think it is.

Q. That is your observation?

A. It is, now. You know, we are not working the same flour. We are not using the same wheat that we did eight or ten years ago—twelve or thirteen years ago.

Q. I was just coming to that. Where do you get your bleached flour? A. I get it from the Skuyler mill.

Q. What brand is it? A. Puritan.

Q. Patent? A. Yes.

Q. How long have you used that?

A. I have used it for about—oh, I guess ten or twelve years. I have used it, I guess, when a good part of it was ground from spring wheat. It was then all right.

Q. Before it was bleached?

A. Yes, and I guess it had been bleached for several years before I knew it was bleached.

Q. What was this unbleached flour that worked so badly?

A. It was ground in Lincoln.

Q. How is that? A. In Lincoln.

Q. In what season of the year did you get that?

A. I got that about three months ago.

1551 Q. Made from old wheat?

A. I suppose so. There would be no new wheat yet, would there?

Q. And you say that worked very bad?

A. It made a very dark loaf of bread. Very dark, brown loaf.

Q. Flavor was bad, too?

A. Well, I know customers said so. I could not say as to that. I did not see the flavor. Of course, when a thing don't look good, it often tastes good, to their imagination.

Q. So, either from imagination or knowledge, the customers thought that this lot of flour that was unbleached—the only lot that you have used of unbleached flour in four years, made a very inferior bread?

A. Three years, I said.

A. Made bread very dark and unsalable for me.

Q. And you lost your trade by it?

A. Yes, sir, I lost a good deal of trade by it.

Q. Do you advertise?

A. I never advertise, only with the goods.

The Court: Sir?

A. I never advertise; the goods is all the advertising I have.

By Mr. Butler:

Q. Do you, yourself, handle the dough, now?

A. I look after it, a great deal. I do not work in it, at all.

Q. You do not work in it at all? A. No.

Q. How long since you ceased to?

A. Oh, I worked in it, now and then, but I don't make a hand, in the shops. Sometimes a man is sick, and I work.

Q. I mean, regularly. How long since you worked regularly? A. About ten years.

Q. What was your daily output, ten years ago?

A. I could not remember.

Q. About.

A. I think in the neighborhood of about 500 loaves of
1552 bread.

Q. And it is about 2000 now?

A. No sir, you asked me my capacity.

Q. Oh.

A. No, sir; my trade now is light. A little light.

Q. About how many loaves?

A. Somewhere in the neighborhood of 700 a day. In the winter, about 1000 to 1100. I have a hot bread proposition. I sell more in cold weather than I do in hot.

Q. Hot bread?

A. Yes. I sell a good deal of hot bread. I bake often.

Q. You never were in a flour bin filled with bleached flour, were you? A. Which?

Q. Were you ever in a flour bin that was filled with bleached flour? A. No.

Q. So, you do not know how the bin containing the bleached flour smells?

A. No, I do not know anything about it. I run it through a sieve and mix it through a mixer, and it raises a big dust, and it looks like if there is any smell there, I would get it.

Mr. Butler: That is all.

Redirect Examination

By Mr. Elliott:

Q. Mr. Vodrie, I understood you to say, in answer to Mr. Butler's question, that you sell a good deal of hot bread?

A. Yes.

Q. I will ask you if you have ever had any complaints from any source from your hot bread having a bad odor? A. No.

Mr. Butler: Just a moment. We will object to that as hearsay, and as incompetent, irrelevant and immaterial. I have not understood, and I will not repeat the objections, if the Court has indicated this position, but I
1553 have not understood that it has been ruled in this case

that these dealers or brokers in flour may testify to what their customers say about it.

Mr. Elliott: I will withdraw the question.

The Court: Very well.

By Mr. Elliott:

Q. I will ask you if such hot bread has any unpleasant odor? A. None.

Recross Examination

By Mr. Butler:

Q. Do you think bleaching improves the odor?

A. Odor? I do not see that it has any odor about it, either bleached or unbleached.

Q. You never detected any odor in any bread, from flour bleached or unbleached?

A. Well, when the dough is in bad shape, I have.

Q. But I mean good bread?

A. No, I did not, any unpleasant odor.

Q. So, you say the bread hot or cold has no odor, if it is made either from bleached or unbleached?

A. It has a smell, as a matter of course, but not a bad odor.

Q. Now, does the bleaching of flour improve the smell?

A. I would not think it would.

Q. I wouldn't, either. A. No, I do not think it would.

Witness Excused.

1554 Frank Earl Roth, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. Mr. Roth, please state your full name.

A. Frank Earl Roth.

Q. Where is your residence? A. Lincoln.

Q. What is your occupation?

A. Secretary and Manager of the Cootch Milling & Elevator Company.

Q. And where is that located? A. Lincoln, Nebraska.

Q. What is the capacity of your mill?

A. 300 barrels. We are now remodeling to make it 700.

Q. Do you use an Alsop bleacher in that mill?

A. Yes, sir.

Q. How long have you been using it?

A. Since we started, nineteen months.

Q. Nineteen months? A. Yes, sir.

Q. That is, when the mill was started? A. Yes, sir.

Q. Have you, since the machine was installed, had to make any change of the piping, at all? A. No, sir.

Q. Or have you made any such change? A. No, sir.

Q. Do you still bleach your flour? Are you bleaching it now? A. We did, up to the time we shut down to remodel.

Q. Now, I will ask you why you bleach your flour.

Mr. Butler: That is objected to as irrelevant and immaterial.

The Court: He may answer.

A. We bleach it because the trade demands flour that will make white bread, and because it enables us to put our flour on the market, aged, rather than to leave it in the mill, unbleached, until it ages properly to make white bread.

1555 The Court: Well, then, you simply do that to save time over natural bleaching; is that it?

A. Yes, sir.

Mr. Scarritt: Time and money?

A. Time and aging.

By Mr. Elliott:

Q. You are not, yourself, a practical miller?

A. No, sir.

Q. You are the Secretary and Manager of this mill?

A. Yes, sir.

Q. Now, have you a sample of the bread made from the flour you grind, bleached and unbleached?

A. Yes, sir.

Q. I hand you Exhibit 243 and 244 and ask you to state what they are.

A. Exhibit 243 is bread made out of unbleached flour, and Exhibit 244 is bread made out of bleached flour.

Q. Made out of the same flour?

A. Both made out of the same kind of wheat, from the mill, one taken before the bleacher, and one taken after the bleacher, made a little over a week ago.

Q. Where were those loaves made?

A. At the Southwestern Flour Testing Laboratories in the Exchange Building, at Kansas City.

Q. And by whom, if you know? A. Mr. Esterbrook.

Mr. Butler: Who made that bread?

A. Mr. Esterbrook.

Mr. Butler: Here in Kansas City?

A. Yes, sir.

By Mr. Elliott:

Q. Exhibit No. 244 is, you say—

A. (Interrupting) This is the bleached flour, and this is the unbleached flour.

Q. 243 is the unbleached? A. Yes.

(Witness hands exhibit to the jury.)

Mr. Butler: Now, just a moment. I am going to object to the use of these until the foundation is laid.

1556 Mr. Elliott: What kind of a foundation?

Mr. Butler: I want to find out who made them, or how they were made.

Mr. Elliott: I have just told you.

Mr. Butler: All right; make your offer, and do not use them until they are admitted in evidence.

By Mr. Elliott:

Q. Who made these?

A. Mr. Esterbrook. He is the chemist, I understand, of the Southwestern Flour Testing Laboratory.

Mr. Scarritt: If they require it, if Your Honor please, we will fill in that gap, the same as they did about Miss Wessling's bread.

Mr. Elliott: Well, I offer the exhibits in evidence.

Mr. Butler: They are objected to, no foundation having been laid, and if there be any doubt of the sufficiency of the foundation, I ask permission to inquire.

The Court: You may cross examine him on that.

By Mr. Butler:

Q. Did you bring this flour here, yourself? A. Yes, sir.

Q. For the purpose of having it made up in bread, for evidence in this lawsuit? A. Yes, sir.

Q. When did you come here? A. Yesterday morning.

Q. When was the flour milled?

A. The flour was milled a week ago Saturday.

Q. Milled for the purpose of making this test?

A. No, sir, from the regular run.

Q. Did you see this bread made?

A. No, sir, I did not.

Q. Do you know the man who made it? A. No, sir.

Q. Can you recognize that flour, in any bread that it happens to be in? A. No, sir.

1557 Q. So that you cannot tell whether that is your flour or not, can you?

A. I have his word for it. He is a professional man.

Q. That is all you know about it? A. Yes, sir.

Q. And he is a chemist? A. Yes, sir.

Q. And not a baker, at all, except a chemical baker, and experimental baker, isn't that it?

A. Yes, sir.

Mr. Butler: We insist upon our objection.

Mr. Scarritt: Now, he is here, isn't he?

The Witness: He is in the city.

Mr. Scarritt: We will have him here and fill that in, if your Honor please.

Mr. Butler: I think it is time to introduce the bread, then. This gentleman is not a practical miller or baker. He is simply the Secretary.

The Court: Certainly. Mr. Elliott, I do not think you have supplied the proof necessary.

Mr. Elliott: Well, we will lay that aside, for the moment, your Honor.

The Court: They are identified, and you may put them to one side.

Mr. Scarritt: If your Honor please, if we say that we will fill in the evidence, isn't that sufficient?

Mr. Elliott: I will bring Mr. Esterbrook here.

The Court: I am not doubting your word, of course.

Mr. Scarritt: Well, I understand it, but in order to save time—

The Court: (Interrupting): Well, put them in, then, but the way we stand now, we do not know anything about what the jury is looking at.

Mr. Scarritt: The same as it has been, all through the case.

The Court: Now, there you go again.

1558 Mr. Butler: In order to get the record clear I now move to strike out that part of the witness' testimony which is to the effect that this flour is contained in these loaves of bread, 243 and 244.

The Court: I admit these in evidence upon statement of counsel, while not so broad as I make it, with the understanding that it is made precisely in one and the same way, and in all respects alike, so they may be admitted in evidence with

that evidence to follow. If one had more water, or more something else, of course they become utterly valueless.

Mr. Scarritt: Now, if your Honor is going to put it that way, we will just wait until we get the evidence, because we do not want to be put in the position of being hung up, on a spoonful of water.

The Court: It isn't a spoonful. You misunderstood me. I did not use the word "spoon". We have been told by some witnesses here how bread is made under different circumstances—

Mr. Scarritt: I understand that, your Honor, but it is always customary, if we said we would supply the evidence.

The Court: Your word is perfectly good, and I admitted them, Judge.

Mr. Scarritt: Well, you make it too strict. We might fall down.

The Court: Let them go in as evidence. Go to something else.

By Mr. Elliott:

Q. Now, I will ask you to say again which is which—243 is the unbleached and 244 the bleached; is that correct?
1559 A. 243 is the bleached, and 244 is not bleached.

A Juror: I understood you to say your mill is shut down, and not running.

The Court: They are rebuilding it.

The Witness: Yes, sir, shut down now.

Mr. Scarritt: Since when?

A. A week ago last Monday morning, we shut down.

By Mr. Elliott:

Q. I will ask you if you have a sample of the pipe and of the hose that you used in your mill? A. Yes, sir.

Q. Will you get it, please?

(Witness produces the articles requested.)

Q. Now, I hand you a section of rubber pipe, and ask you to state what that is.

A. That is a section of hose that contained the bleaching gas from the electrifier into the galvanized iron pipe, that took it to the agitator. That is, the bleaching gas passed through that, from the electrifier. It went through that, first.

Q. I will ask you if this pipe, which I mark Claimant's Exhibit 245, has been in use since you installed the Alsop process? A. Yes, sir.

Mr. Scarritt: How long has that been used?

A. Nineteen months.

Mr. Elliott: I offer this in evidence.

Q. Now, I hand you a piece of iron pipe, marked Claimant's Exhibit 246, and ask you to state what that is.

A. That is a piece of galvanized iron pipe that carries the bleaching gas into the agitator, taken, I should say, about three feet from where the gas entered the agitator.

Q. How long has this iron pipe been in use?

A. Nineteen months.

Mr. Elliott: I offer this in evidence.

Q. Now, tell me why you use this rubber pipe, or do you know?

1560 A. Yes. On account of the insurance requirements. It is a non-conductor, and won't conduct electricity from the electrifying machine into the pipe.

Q. As I understand it, this rubber pipe, 245, is put between the electric generator and the iron pipe, of which Exhibit 246 is a section? A. Yes, sir.

Q. I will ask you if this Exhibit 246 is a specimen of the pipe in actual use, and represents the condition of that pipe, so far as you know?

A. Well, I will say that, in dismantling the mill, when that came apart, it was allowed to lay in rather a dusty place, and there might have been a small accumulation of dust, that was not there when this was disconnected.

Q. But, otherwise?

A. Otherwise it is just as it was taken from the bleacher.

Mr. Elliott: That is all.

Cross-Examination

By Mr. Butler:

Q. How many agitators are connected with your bleacher?

A. Two.

Q. One for patent, and one for clear? A. Yes, sir.

Q. You bleach both? A. Yes, sir.

Q. Which one was this pipe connected with?

A. Both were connected with the same lead. One was simply a leader from the main pipe.

Q. Well, this iron pipe was the pipe going into one agitator, was it? A. No, that was the lead, there.

Q. That was the lead? A. Yes, sir.

- Q. How far is your agitator from your generator—from your gas factory?
- 1561 A. About 34 feet.
- Q. About how far from the tank?
- A. About six feet.
- Q. And this man next to the tank?
- A. That was between the tank, and—
- Q. (Interrupting) Have you two agitators side by side?
- A. Yes, sir.
- Q. One for clear flour and one for patent?
- A. That is, our best flour.
- Q. And this was a part of the stub connection with the tank? A. Yes.
- Q. And how long is that stub?
- A. I do not understand you.
- Q. Well, you have a pipe running out of the tank, and it then divides into two parts, and one goes to one—the clear agitator, and one goes to the patent agitator. Now, how long is that pipe?
- A. Well, the lead pipe runs right along this way, and, about six inches from this pipe, which runs into the large agitator, and then it comes up here, about six inches, into the small agitator.
- Q. For instance, we will call this the lead pipe, and you would have one out here and one here (indicating)?
- A. Yes.
- Q. And a valve in each place? A. Yes.
- Q. Now, where would that piece come from? We will call this the tank, here.
- A. Yes, that would go in, over here.
- Q. And we will call this the clear, and that the patent.
- A. Well, it is just the other way. This is the patent and this is the clear (indicating).
- Q. Well, now, which one is that?
- A. That came off of the main pipe.
- Q. Why did you select galvanized iron, instead of common iron? A. I do not know.
- Q. No? Who did that for you?
- A. I think the steam-fitter put it up.
- Q. What is that stuff inside there?
- A. I do not know.
- Q. Did you ever clean out your pipes?
- A. I do not know.
- 1562 Q. This pipe may have been cleaned out a week before you came here, for all you know.
- A. I do not think it was.
- Q. I know, but you said you did not know.

- A. I do not know.
- Q. Who asked you to bring that pipe here?
- A. Why, I brought it at my own instance.
- Q. Who asked you to bring it here? Did you just bring this yourself?
- A. After reading the testimony, yes, sir.
- Q. Where were you, when you read that testimony?
- A. I was in Lincoln.
- Q. Now, this dust that you speak of, was that inside or outside the pipe?
- A. Might have been on either.
- Q. Was it something that came out of the inside of this pipe, when you took it out?
- A. No, sir; I did not investigate it.
- Q. Were you there when it came out? A. No, sir.
- Q. So, you do not know, do you? A. No, sir.
- Q. For all you know, this miller may have cleaned it out, who took it out?
- A. Yes, we can find it out.
- Q. Yes, you can ask the miller. Did you bring here the miller who took it out? A. No.
- Q. Anybody here who knows how often this pipe was cleaned out? A. No, sir.
- Q. Anybody here who knows how often the rubber hose was cleaned out? A. No, sir.
- Q. Nobody here who knows whether you had to clean out your agitators or not, to get the yellow flour out of it?
- A. Not as far as our agitators are concerned.
- Q. Anybody here who knows about that?
- A. Not about our agitators.
- Q. Well, that is what I mean by that. A. No, sir.
- Q. So far as you know, your agitators keep clean of this yellow flour?
- 1563 A. So far as I know, yes, sir.
- Q. Have you ever seen the yellow flour? A. No, sir.
- Q. Have you ever smelled the gas? A. Yes, sir.
- Q. Where?
- A. I have smelled it in the bleaching arc, and I have smelled it in the flour bin.
- Q. In the flour bin? A. Yes, sir.
- Q. Where bleached flour is stored, it gives off gas, so you can smell it?
- A. No, sir; it isn't stored. It is run into the bin.
- Q. Well, I mean, where it is put?
- A. Where it runs through, yes.
- Q. I did not use "store" in the sense that it stayed there a long time? A. Yes, sir.
- Q. So that the flour fills the bin with the gas?

A. You can smell it?

Q. Yes? You know the smell of nitrogen peroxide?

A. I do not. I know the smell of the bleaching gas.

Q. And that is the bleaching gas you smell in the flour room?

A. Yes, sir, that is, in the flour bin.

Q. Did you ever have any of this sediment which accumulates in this thing, analyzed, to find out what it was?

A. No, sir.

Q. You do not know, do you? A. No.

Q. Did you ever see an iron pipe that was used for conducting this bleaching gas from the Alsop to the bleacher?

A. No, sir.

Q. Well, here is one, used at Krite's mill, East St. Louis.

A. Yes, sir.

Q. Is it within your knowledge that nitric acid will eat out an iron pipe, a great many times faster than it will a galvanized iron pipe? A. No, sir.

Q. You do not know that? A. No, sir.

Q. How many barrels of flour were bleached by this Alsop process in the nineteen months?

A. I would have to figure.

Q. Please do it.

1564 A. There was in the neighborhood of 72,000 barrels.
Q. In nineteen months, and your capacity is 300 barrels a day? A. Yes, sir.

Q. And you are running to capacity? That would be about capacity, would it not? A. I do not think so.

Q. How many barrels of clear flour bleached, and how many of patent? Do you run Sundays?

A. We did, a week ago Sunday.

Q. Well, I mean generally? A. No, sir.

Q. How many days, about, do you run?

A. I usually figure it by the hour. About, I should say, an average of 385 hours a month.

Q. How many hours in a month?

A. Well, usually a working month is about 600.

Q. And how many barrels an hour? A. I figure 10.

Q. That would be 30,500? A. How is that?

Q. How many did you say, altogether? How many barrels of flour did you say? A. About 72,000.

Q. How many of that is clear?

A. Well, I cannot say. Sometimes we do not run any clear.

Q. How many barrels of clear flour have you bleached in 1901, about? A. I am not in position to say.

Q. Well, give us the best you can. You cannot tell us how many were bleached, unless you can tell us how many of each kind were bleached, can you? I want to find out how much

gas went through these pipes, just figuring the average number of hours each month run, making so many average barrels per hour, which would strike the average.

Q. How much clear was bleached?

A. I do not know; I do not know the runs. I am not in position to say.

Q. How much patent was bleached?

A. Well, some of the patent, and the clear, would be all the flour that was bleached.

1565 Q. How many barrels of the total output were bleached? A. 72,000 barrels.

Q. So you bleach all you make?

A. All but the low grades.

Q. Well, I know, but was that sold as flour?

A. All we made.

Q. Was the low grade sold as flour, commercially?

A. Sold on sample, low grade flour.

Q. Now, I want to find out how many barrels of patent you bleached, and how many barrels of clear you bleached. You had one pipe into the clear agitator, and one into the patent agitator? A. I cannot tell you.

Q. Can you give us any idea?

A. Well, the most part is on 95 per cent flour.

Q. That is, 95 per cent patent?

A. We do not call it patent. We call it 95 per cent.

Q. Do you brand it patent? A. No, sir.

Q. What is made in this patent agitator, then?

A. Well, that is what we call the best flour.

Q. That is the 95 per cent?

A. Well, if we run it 95, we don't run but one kind of flour at a time, you know. If we run 95 per cent, we do not run our best patent.

Q. Well, when you run 95 per cent?

A. Then there is only one agitator used.

Q. You put it all in one agitator?

A. Yes, sir. When we are running the best flour, the best flour goes through a large agitator.

Q. What per cent? A. It ranges from 75 to 85 per cent.

Q. How much clear? What is the percentage of your clear, then, that is bleached?

A. Well, if we run 75 per cent, that would be 20 per cent of clear, taking off five per cent of low grade.

Q. So then, you bleach, when you organize that way, 95 per cent of the total flour content of your wheat? A. Yes, sir.

Q. Do you advertise it as bleached? A. No, sir.

1566 Q. The demand from your customers has not been such as to require you to advertise it to be bleached, yet?

A. No, sir.

Q. You told us the demand from your customers require it to be bleached, though?

A. The demand from our customers demands a flour that will make white bread.

Q. If I took a knife and cut off a slice from each one of these loaves of bread that you have brought here, could you say which was made of bleached or unbleached flour, do you think if I did not let you see the exhibit number, could you say which was which?

A. I might not, here in the light, because it is dark, but you put it on a plate—

Q. Well, that is all right. But, with such light as we are working with in the court room, and we are working without artificial light at this moment, you are unwilling to swear that you can tell which bread was made from the bleached and unbleached? A. I will take the chance.

Q. Well, will you swear— do you think you can do it?

A. Yes.

Q. You think you can do it? A. Yes.

Q. Well, now, without cutting it off, can you do it?

A. Yes. This is the unbleached (indicating).

Q. Now, look at it and tell us which mark is on the unbleached. A. 243.

Q. Did you look at that before you answered?

A. No, sir; change them around again.

Q. Oh, no; if you say you did not. I think I can tell. Now, then, it is because of that very slight difference in color, and because of that only, that you bleach flour by the Alsop process, in your mill?

Mr. Helm: That is not what he said, Mr. Butler.

Mr. Butler: Well, I am asking if that isn't the fact.

A. That is one of the reasons why we bleach it.

1567 By Mr. Butler:

Q. That is only one of the reasons, isn't it?

A. That is one of two reasons.

Q. That is one of two reasons? A. Yes.

Q. Now, if that was the only reason, and you thought it added a poisonous substance—a very minute poisonous substance, not enough to kill me, but enough to give off an odor, but still poisonous if taken in sufficient quantities, do you think that that would justify bleaching?

Mr. Scarritt: I object to that as an argument, if your Honor please.

Mr. Butler: Well, maybe it is.

The Court: Objection sustained.

By Mr. Butler:

Q. Does bleaching make flour lighter in color?

A. Whiter, yes, sir.

Q. Is a short patent lighter than a long patent?

A. Well, now, I cannot say.

Q. You are not miller enough for that? A. No.

Q. Is a new flour darker than an aged flour—naturally aged, both unbleached?

A. Yes, sir. The new flour darker?

Q. Yes. A. More yellow.

Q. Yes, darker in color? A. Yellow.

Q. You mean less white? A. Yes, less white.

Q. So that, if you bleach the new flour, you make it look like the aged flour, don't you?

A. I do not know what aged flour looks like.

Q. You never [say] any? A. No, sir.

Q. Well, you have told me it was whiter in color than the fresh flour.

A. Well, I was just going on what I hear.

Q. You do not know about that?

1568 A. I am not experienced in the mill; I do not know.

Q. So, you are not qualified, you feel, then, to go into the technicality?

A. Certainly not into the technical part.

Q. Have you never been in the milling business until this nineteen months? A. No, sir.

Q. What was your business before that?

A. Grain business.

Q. Selling to mills?

A. Well, I was not the seller; I was simply a minor employee.

Q. Are you interested financially in this mill?

A. Yes, sir.

Q. Are you interested financially, or your company, in any way, with the Alsop people? A. No, sir.

Q. So your activities in bringing this flour all the way from Lincoln, and employing a chemist to bake it, and taking the parts of your mill here, was simply from your interest in the matter, as a mill bleacher? A. Yes, sir.

Q. You never made any investigations or inquiries as to what effect this bleaching had? You are not up on that, I understand? A. No, sir.

Q. Did the bleaching company guarantee protection to you against the order of the United States Government, prohibiting bleaching by nitrogen peroxide gas?

A. No, sir. We got it before this issue came up.

Q. You bought it before nineteen months ago?

A. We bought our bleacher in August, 1908.

Q. Who installed it?

A. Why, our millwright foreman that we had installing the machinery in the mill.

Q. Who furnished the stuff? A. The machinery?

Q. Yes. A. Alsop.

Q. Piping?

A. No, sir. We bought it of a local plumber, there.

Q. Was your millwright an experienced bleacher, before this?

A. Well, he knew enough to set up the machinery.

1569 Q. I am trying to find out why it was galvanized pipes, instead of ordinary iron pipes that were selected. You do not know anything about that? A. No, sir.

Q. When were those pieces that you have just handed to the jurymen, [but] off of Exhibit 243 and 244.

A. This morning, I think.

Q. Who cut them off? A. Mr. Esterbrook.

Q. And gave them to you? A. Yes, sir.

Q. You brought them here? A. No, sir.

Q. Who brought them here?

A. Mr. Larabee. I saw them yesterday.

Q. Where does Mr. Larabee live?

A. I do not know.

Mr. Scarritt: He is here.

Witness excused.

Alva Edgecomb, called as a witness on behalf of claimants, being first duly sworn, testified as follows:—

Direct Examination

By Mr. Elliott:

Q. State your full name.

A. Alva Edgecomb.

Q. Where do you live, Mr. Edgecomb? A. Omaha.

Q. What is your business? A. Milling.

Q. In what capacity are you now engaged in business?

A. Manager and Secretary of the Updike Milling Company.

Q. And where is that company located? A. Omaha.

Q. Are you a practical miller? A. Yes, sir.

Q. How long have you been engaged in milling?

A. 30 years.

1570 Q. What is the capacity of the mill of the Updike Milling Company? A. 500 barrels.

Q. A day? A. Yes, sir.

Q. 500 barrels per day. Does [you] mill use an Alsop bleacher? A. Yes, sir.

Q. How long have you been using it?

A. It will be three years in October.

Q. Have you, yourself, had experience with that Alsop bleacher? A. Yes, sir.

Q. Have you had experience with it in any other mills than the Urdike Milling Company?

A. At two other points.

Q. State what others, and how long.

A. We had about two years, at Missouri Valley, Iowa, and about six months at Logan, Iowa, and the rest at Missouri Valley.

The Court: You mean the rest in Omaha?

A. Yes, sir.

The Court: You said Missouri Valley.

By Mr. Elliott:

Q. Now, I will ask you to tell us what, in your judgment, is the effect on flour of bleaching it.

A. It whitens it in color, and ages the flour.

Q. And what? A. Ages the flour.

Q. Now, tell us what you mean by "ages the flour".

A. I mean that, before the use of the Alsop bleacher, we always carried large stocks of flour in the storehouse—

Mr. Butler: I object to that as not responsive to the question and move to strike it out.

The Court: That is not responsive, and is stricken out.

Mr. Butler: We do not need to talk about Alsop bleachers, telling what aging is.

By Mr. Elliott:

Q. What do you mean by aging flour?

A. I mean that flour is better by having some age
1571 on it, between the time of milling and the time it is baked.

Q. Now, suppose you bleach flour from new wheat, how does that flour compare with the same flour, if you should let it age, for 30 to 60 or 90 days?

Mr. Butler: Just a moment. It seems to me that is drawing a false issue. It is not new wheat flour.

Mr. Elliott: Why, you have put witness after witness on to tell about that.

The Court: He may answer it.

A. The new wheat flour, bleached, is, to all appearances, and to all practical purposes, aged at least 60 days.

Q. I will ask you to answer that, in terms of quality. Do you mean by that that it possesses the characteristics of flour that has been aged that long, or what?

A. I mean that it possesses all the qualities of aged flour.

Q. Now, how do you know that? Tell us how you know that?

A. I know it from experience, and from the fact that we are able to hold our trade with flour, particularly from—

Mr. Butler: (Interrupting) I move to strike out his holding his trade.

The Court: That is stricken out.

By Mr. Elliott:

Q. Now, you can answer my question. I asked you, how do you know that this flour possesses the characteristics of naturally aged flour? Upon what do you base that opinion?

A. Do I understand that my answer was stricken out?

Mr. Scarritt: Only part of it.

Mr. Butler: That part relating to his trade was stricken out.

By Mr. Elliott:

Q. Is there anything in your experience that will enable you to tell us how you know that?

1572 A. By the baker's test.

Q. Now tell us how that is.

A. We keep continually someone in our employ, who is baking our flour, at least twice a week. And on the baking test, we rely largely for results.

Q. I will ask you if you have ever had experience in delivering, or giving bleached flour and unbleached flour to bakers? A. Yes, sir.

Q. And if there has been any difference in the way that flour has been received by any bakers, you can tell what it is.

Mr. Butler: Wait a moment. I have understood it to be indicated that we could not go into what the customers said.

The Court: One of the issues in this case is, not whether the customers are satisfied, so much, because it is charged that customers are satisfied by fraudulent methods, to-wit, in the language of the statute: "If it be mixed, colored, stained, and so forth, in a manner whereby damage or inferiority is concealed", is one of the things charged, and, secondly, where a poisonous ingredient has been inserted; so that the customer, the bread eater—not the bread seller, may be deceived; inferiority may be concealed. That is one of the very issues. A man might hold his trade, and his bakers be absolutely

satisfied, but it would be in contravention of the Pure Food Law, if they are satisfied, because they have been deceived, and inferiority is concealed, just as I may get a coat, supposing it to be a Scotch import, and be perfectly satisfied with it, but, upon analysis or investigation, it might be American shoddy. So, how can you make that the test, Mr. Elliott? I have been satisfied with the bread I was eating, if I knew nothing about the bleached flour process. The inferiority may have been concealed from the ordinary housewife or servant, or purchaser for the family. They may be perfectly

1573 satisfied, but, if inferiority is concealed, or the poison injected, is it not in violation of the Pure Food Law, precisely as my ham that I buy may be loaded with preservatives, or maple sugar that I buy may smell and taste to me like maple sugar, but an analysis may show that it is made out of brown sugar, and yet, the purchaser in the one case is entirely satisfied. So, how are you going to get at it in that way?

Mr. Butler: Let me suggest the further point that it is merest conclusion and hearsay.

The Court: I was simply saying, now, that in my judgment, it is not the test, to show by the miller, or by the baker that, because—

Mr. Scarritt: (Interrupting) If your Honor please, we certainly must be permitted to object and except to the statements made by the Court at this time.

The Court: You may take exception, but nevertheless, I will make my statement, just as I understand the law that, if it comes within either of these provisions of this statute, then this is contraband. Otherwise, it is not. I mean the two issues that I am now dealing with. There are two other issues. "If it be mixed, colored, powdered, coated, or stained, in any manner whereby damage or inferiority is concealed". then it is contraband, and in violation of the Pure Food Law, under which this trial is progressing.

Mr. Scarritt: Now, let me suggest on that—

The Court: All right. Now, you go on and talk, Judge, and then I will go on.

Mr. Scarritt: I do not want to talk. I just want to suggest that this is one of the ways that your Honor has suggested, two or three times in this trial, that it goes to the question of the weight of the testimony, and not the

1574 admissibility of it, because it is one of the ways to determine whether there is inferiority there. People do not generally accept and take inferior things, without mak-

ing some protest or kick, and this goes to that extent, to show that it is not inferior, that there is nothing concealed, that the superiority of the product is revealed, and not concealed. If everybody is satisfied with a certain thing, and so express themselves, either en masse, or as individuals, why that is testimony going to show that that article, or whatever it is, that meets the public approval, is a superior article, and not an inferior article.

Mr. Butler: The point is this: If the baker is satisfied with it, let us have him here, and we will ask him. If the housewife is satisfied, bring her here, and we will ask her. But, to have a man who is a miller testify by mere hearsay that it does so-and-so, does not appear to me to prove anything.

Mr. Scarritt: Is not the chain complete? The miller affords to the dealer what the dealer necessarily requires for the public consumption.

Mr. Butler: No miller can testify that I am satisfied or dissatisfied as to the flour, without hearsay.

Mr. Scarritt: Yes, he can. It is a matter of notoriety.

Mr. Butler: The miller might want to cheat the person who buys the loaf of bread, and he may want the bleached flour, and still [pray] for it.

The Court: Just a moment, gentlemen. Here is what I am trying to get at: I have not expressed any views in this case, and do not intend to, as yet, at least, as to what the evidence tends to show: I mention that, in answer to the criticism of Judge Scarritt, but sometime, sooner or later, you have got to get to the issues here, as presented by the statute, two of which issues are: "If it", in this case meaning flour, "be mixed, colored, powdered, coated, or stained, in a manner whereby damage or inferiority is concealed"; if the verdict is solely under that, one result follows. Another issue that will be submitted to the jury later on, is: "If it",—meaning flour—"containing any added poisonous or other added deleterious ingredient which may render such article injurious to health." Now, then, take it under the first one, particularly. Let me illustrate. I may buy or order at the cigar store a Havanna cigar, sold to me as a Havanna cigar. I may think it is the finest cigar I have ever got in my life, but it turns out that it was native growth tobacco, one inferior to the other.

Mr. Scarritt: Not necessarily.

The Court: Now, Judge, I would like a good deal if I could talk once without interruption.

Mr. Scarritt: All right; I beg your pardon, your Honor.

The Court: I may be satisfied in any supposed case—I don't care what you take—I may be satisfied, and yet if the inferiority has been concealed, then it is a fraud, and much like all frauds, the fraud is concealed, otherwise the man would not purchase it. The horse with the heaves or other disorder, is concealed from me; I buy him, would not buy him, but for the concealment of the fraud. Now, the point I am getting at here, is it for the miller to say that the trade is satisfied? That is what I am getting at. The trade may be or may not be satisfied by the very concealment of the inferiority. I am not saying it is inferior. Later on that will be submitted to the jury, whether new wheat flour, concealed as old flour, sweated in the sack, sweated in the bin, gone through 1576 the natural processes, if that is inferior, if that inferiority is concealed by the process, then, is it not in violation of this statute?

Mr. Scarritt: We must object and except in the same way, your Honor.

The Court: Sir?

Mr. Scarritt: I say, we must object and except, as we did before, to the remarks of the Court at this time.

The Court: Which particular remark?

Mr. Scarritt: The remarks with reference to—

The Court: (Interrupting) My reading the statute?

Mr. Scarritt: Reading the statute, and making the argument on this proposition.

The Court: Very well. I repeat, I have not expressed my views about the evidence in this case.

Mr. Scarritt: In this view, your Honor. Your Honor has said we must all keep our minds free from any conclusion, until we get through.

The Court: Yes, sir.

Mr. Scarritt: I think it is perfectly right.

The Court: Yes, sir. I have not expressed it, but I am trying to get back, because, sooner or later, this case is going to be submitted to the jury under the provisions of the statute, to which I will draw specific attention. If inferiority is concealed by the bleaching process, then what follows? If a poisonous gas—if it is poisonous—was injected in this flour, and the flour is made white, then, if that is harmful, and so forth, in

the language of the statute, then what? Now, I see you gentlemen are all anxious to make a speech and I am not anxious to hear you this evening. Court is adjourned until tomorrow morning.

(Thereupon Court was adjourned until ten o'clock a. m. Wednesday, June 22nd, 1910.)

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Pursuant to adjournment, Court met at ten o'clock a. m., Wednesday, June 22, 1910, and proceeded with the trial of said cause further as follows:

The Court: When we adjourned last evening, we were talking about certain matters. I do not know whether there was anything further counsel desired to say about that, or not. If there is, I will hear you, briefly.

Mr. Elliott: If your Honor please, I do not want to weary you with this talk, but I merely want to make this observation, because I think my question was not understood. As I understand it, Mr. Butler has been endeavoring to show that, if a new flour is bleached—that is, flour from new wheat we will say, is bleached, and whitened in color, and, if it possesses, notwithstanding the bleaching, all the properties of a new flour, and is unworkable, a person might buy that flour, thinking it was a naturally aged flour, and it had the properties of a natural aged flour, and be deceived. Well now let us pass that for a minute. Now, I have been endeavoring to show by this witness that, in his judgment, flour from a new wheat that is bleached, not only is lightened in color, but that its quality is improved, and that it is aged and conditioned. That is what he testified. Now, it seems to me it is germane to that, to show the difference in the way flour has been received by his customers, whether it was bleached or unbleached.

The Court: Who do you mean by customers?

Mr. Elliott: The man he has sold it to—the baker, for instance. If he has sold them flour, bleached and unbleached, has there been any difference in the way they have been received, and if so, what? That is what I have been trying to bring out.

Mr. Butler: The last question is: "If there has been any difference in the way that flour has been received, by any baker, you can state what it is". Now, maybe the baker
1578 paid less for it than he would have paid if it had been naturally aged flour. Maybe it is a matter of adjustment, commercial considerations, and in any event, it is purely hearsay for him to testify as to the states of mind of a baker,

as to this. Let the bakers tell how this flour does. Let them say what kind of bread it makes. It is not for a miller to get off, in sweeping remarks, that it gives satisfaction to bakers, or somebody else. Let somebody else who has used it, who knows, say and some one we can cross-examine. It won't do to bring witnesses here, who do not know anything and let him give their conclusions, that we cannot cross-examine--matters of hearsay. That might do in a town meeting, but it won't do to try a law suit that way.

The Court: Now, let me say a few things. No one doubts the importance of these matters, and I am not speaking only of the present question. So far as that one question is concerned, it may or may not be pivotal, but, on the 30 day of June, 1906, four years ago, congress, with the approval of President Roosevelt, carried this measure forward into a statute known as the Pure Food and Drugs Act. That is the statute under which we are proceeding and under which this trial is being conducted. That congress had the authority and power to so enact, I have already adjudicated in another forum, in part, the same parties, perhaps, and, in part, independent parties, but I have an abiding conviction on that question, as expressed in my opinion. I am not speaking as to the reasons for my opinion, but the conclusions. I could better that opinion, I think, if I had the time in which to do it, but I have seen no reason whatever to modify my conclusions as to an interstate shipment like this, from Lexington, Nebraska, to Castle, or Greencastle, or whatever it may be, in Missouri, being an interstate shipment, gives this court jurisdiction to hear and determine the question as to the particular flour now under seizure. This pure food statute seems to me is for the benefit of the consumer, in this case the bread eater, which comprises the entire human family. This statute is not for the 1579 benefit of the baker, or the middleman, nor for the miller, nor for the wheat grower. It is for you, and it is for me, and every one else who eats bread, and probably we all do, three times a day, and, quite likely, that is true of the entire human family. Now, this statute is divided into three grand divisions. One is with reference to drugs and medicines, in which a distinct, specific test is made. With that, we are not now dealing. The second division is with reference to confectionery eaten, perhaps, by all children and quite a percentage of adults. That fixes a specific test in not what the confectionary shall contain, but what the confectionery shall not contain. The third and last division, being the one under which we are now proceeding, is with reference to food stuffs, including flour made up into bread, pastry, and so on. Most obviously there could be no specific test made with reference

to foods, and the more one thinks about that, the more strongly it grows on him, and it necessarily follows that congress was compelled to use some general terms in the statute. One is with reference to misbranding. To that, for the present, I shall not allude. But this statute refers in this way, aside from the interstate shipment proposition, which is a question of law "That, for the purpose of this [set], an article shall be deemed to be adulterated", passing by drugs and confectionery, "in the case of food, first if any substance has been mixed and packed with it, so as to reduce or lower, or injuriously affect its quality or strength." The pleadings under that clause, present an issue that is now being tried. Passing by the second and third, as not being germane to any inquiry here, the fourth "If it be mixed"—it meaning flour—"colored, powdered, coated, or"—disjunctive "or"—"stained, in a manner whereby damage or inferiority is concealed." Now, under that, these pleadings present a distinct issue. Fifth "If it" meaning flour, in this case—"Contain any added poisonous, or other added deleterious ingredient, which may render 1580 such article injurious to health." Now, there are the four issues we are trying. First, with reference to misbranding, that I have passed to one side for the time being. Here are the other three.

Mr. Scarritt: Is Your Honor charging the jury, now?

The Court: No, sir. I am giving my reasons, being an explanation of my ruling. Why that question, Judge, I do not understand.

Mr. Scarritt: Well, it seems to me it does not appertain to the ruling, as to whether these bakers shall testify as to what effect this flour has. They are part of the community. You cannot exclude them as a part of the community. They are consumers, as well as purchasers.

The Court: My belief is, this statute is for the benefit and protection of consumers.

Mr. Scarritt: I agree with you, and they are consumers. We are all consumers, but it seems to me it is unnecessary at this time, if Your Honor please, with all due regard and respect for Your Honor, I have, to go over the whole ground of this pure food law. That is what occurs to me. It is anticipating the charge to the jury. I say that, because I think that it is my duty to say it in the interest of my clients.

The Court: I was trying to analyze the issues, and what leads up to it.

Mr. Scarritt: I understand, Your Honor.

The Court: Now, there are two theories here with reference to the poison. One, by the government, and one by the defendant, concerning which I now have nothing to say, but will, later on, in my charge to the jury. But the question now before the court goes to clause four, which I repeat "If it"—meaning flour in this case—"be mixed, colored, powdered, coated, or stained, in a manner whereby damage or inferiority is concealed." Concealed from whom? That is the ultimate question that I am to charge this jury concerning. Now, any evidence on

1581 the part of the government that tended to show that inferiority of flour is concealed by the bleaching process, was admissible. Any evidence tending to show that inferiority of flour is not concealed by the bleaching process, is legitimate evidence for the claimants to offer. Now, I am not saying but what you can take it, step by step, and show that the baker is not deceived, or that the inferiority, if there is an inferiority—and that is a question of fact for the jury—I am not saying but that you can show by the baker that the inferiority, if any, is not concealed from him, the baker. The question is, is that enough? I am not now saying. I will cover that in my final charge to the jury. I am not charging the jury here, at all, yet. I am giving the reasons for the analysis I have made in my own mind, of this statute. Therefore, I think you can take, and, step at a time, show that, if there is any inferiority, that such inferiority is not concealed from the baker, but the question remains, will that be enough? I shall wait for further arguments on that. But I have no doubt in my own mind, at this time, subject to any change of opinion, about it, that this statute is for the benefit of the consumer. Therefore, I will allow this question to be answered.

Mr. Scarritt: If Your Honor please, we desire to except to the remarks of the court in making the ruling on this question, and save our exceptions.

The Court: Very well.

The witness Edgecomb thereupon resumed the stand and the direct examination by Mr. Elliott was continued as follows:

Q. I will ask you this question. Suppose you bleach flour from new wheat, how does that flour compare with the same flour, if you should naturally age it?

Mr. Butler: That was not the question pending.

Mr. Elliott: Oh, no.

1582 Mr. Butler: Have you withdrawn the question pending?

Mr. Elliott: Not at all.

Q. Then, I asked you if you had had any experience in delivering or selling unbleached flour and bleached flour to bakers, and you said you had.

Mr. Butler: What is this recital for? To help the witness?

Mr. Elliott: No, I just wanted to get the matter clear.

Q. Then, I asked you, if there has been any difference in the way that such flour has been received by any bakers, you can state what it is.

A. I do not know as I exactly understand the question.

Q. In your experience as a miller, have you sold bleached and unbleached flours to bakers? A. Yes, sir.

Q. Now, has there been any difference in the way such flours have been received by the bakers? A. Yes, sir.

Q. Now, you may state what that is.

A. The bakers want the bleached flour.

Mr. Butler: I move to strike that out as giving his conclusion, and hearsay.

The Court: Well, it may stand.

By Mr. Elliott:

Q. On what do you found that statement?

A. In their purchases, they specify that they want the flour bleached.

Q. I will ask you what benefits, Mr. Edgecomb, do you derive—I do not mean financially,—what benefits do you derive from bleaching that flour, as to improving it or otherwise?

Mr. Butler: Objected to as irrelevant and immaterial.

The Court: You may answer.

Mr. Butler: We except.

A. We get a good deal better color by bleaching, and we age it by bleaching.

By Mr. Elliott:

Q. Can you conceal the impurities in flour, if there be any in it? Can you conceal the impurities in flour by bleaching it? A. No, sir.

Q. Suppose a miller should bleach a flour containing impurities, and add such flour to his high grade flour. What effect would that have on the latter?

A. It would lower the grade.

Q. Now, in your judgment, could a miller profit by such a proceeding?

Mr. Butler: Objected to as immaterial. Are we going to try the economics and all the arts of the craft? If you cannot make profits by it, does that make adulterations, and if you can make profits, does that change the effect?

Mr. Elliott: I withdraw it.

The Court: The question is withdrawn.

By Mr. Elliott:

Q. Mr. Edgecomb, I will ask you if you have ever noticed any foreign or unnatural odor in flour that has been bleached by the Alsop process. A. No, sir.

Q. Have you ever compared bread made from bleached and unbleached flour, to ascertain if there was any difference in the odor, and taste, or flavor? A. Yes, sir.

Q. What is your opinion in that respect?

A. I don't detect any difference.

By Mr. Butler:

Q. What? A. I don't detect any difference.

By Mr. Elliott:

Q. Any difference in the smell or the taste? A. No, sir.

Q. Have you ever had any dough balls in your mill, Mr. Edgecomb? A. No, sir.

The Court: I suppose you mean in the flour?

Mr. Elliott: In the process of manufacturing flour, I mean.

Q. Have you ever had any dough balls in any of the apparatus? A. No, sir.

1584 Q. Do you use bleached flour in your own family, Mr. Edgecomb? A. Yes, sir.

Q. I will ask you over what period of time you have been using bleached flour in your family.

A. Between five and six years.

Q. During that time, I will ask you if there has been any sickness in your family from eating such bread.

Mr. Butler: Objected to as calling for his conclusion, immaterial. He has not shown himself a diagnostician.

The Court: Caused by eating this bread?

Mr. Butler: (continuing) Or pharmacologist.

Mr. Scarritt: That is what he said. If he knows.

The Court: He may answer.

Mr. Elliott: If he knows.

A. No, sir.

Cross-Examination

By Mr. Butler:

Q. Well, have they had some sickness, from anything else, Mr. Edgecomb, during that period?

Mr. Elliott: I beg your pardon. I wanted to introduce some samples with this witness, which I forgot.

Redirect Examination

By Mr. Elliott:

Q. Have you some samples of bread with you, Mr. Edgecomb? A. Yes, sir. (Witness produces the samples.)

The samples produced by the witness were here marked by the reporter "Claimants' Exhibit 247" and "248".

By Mr. Elliott:

Q. I hand you two loaves of bread, marked "Claimants' Exhibit 247" and "248", and ask you to state from what flours these loaves were made, and by whom.

A. They were made by the Updike Milling Company.

Q. That is, the flour? A. The flour.

Q. Did you bring the flour here? A. Yes, sir.

Q. To whom did you give it? A. To Mr. Ballinger.

Q. You mean Br. Billings? A. Billings.

1585 Q. What instructions, if any, did you give Mr. Billings?

A. I instructed him to bake them separately.

Mr. Butler: Well, I will object to his instructions to Billings, as immaterial.

The Court: That may stand until we see what will come of it.

Mr. Elliott: Now, Your Honor, expecting to introduce Mr. Billings, to prove how he baked these loaves, I would like to introduce them.

Mr. Butler: Is there any need of introducing them until Mr. Billings can testify?

Mr. Elliott: No special need.

Mr. Butler: Then, just lay them aside.

The Court: Of course, Mr. Elliott's word is good.

Mr. Butler: Oh, yes.

Mr. Elliott: Well, I cannot have Mr. Billings baking bread and in court at the same time.

The Court: Go on. You say you will supply the necessary proof?

Mr. Elliott: I will.

The Court: That is sufficient for me.

By Mr. Elliott:

Q. Now, will you kindly cut those loaves in half? But, before you cut those, which is 247?

A. Well, I would not know.

By Mr. Butler:

Q. You cannot tell which is which, without cutting the loaf? Is that it, Mr. Edgecomb?

A. I would not know which was which, from the outside.

By Mr. Elliott:

Q. Now, cut them open, Mr. Edgecomb.

(Witness does as requested.)

Q. Now, I hand you these loaves, marked "247" and 1586 "248", and ask you to state what they are.

A. One of them is a bleached, eighty per cent, and the other is an unbleached, eighty per cent.

By Mr. Lyons:

Q. Which is which? 248 is which, and 247 is which?

A. I do not know.

By the Court:

Q. Well, look at the exhibit marks, and say which 247 is and which 248 is. A. This is 247 and this is 248.

By the Court:

Q. Which is the bleached? A. I do not know.

By the Court:

Q. Which is the unbleached? A. I do not know.

The Court: Well, he says he doesn't know. Anything further?

By Mr. Elliott:

Q. How old was the flour from which the unbleached bread was made?

A. It is between five and six months.

By the Court:

Q. How old, the bleached flour?

A. The bleached flour was made last Friday.

By the Court:

Q. The baking was done yesterday, or this morning, which?

A. I do not know.

Mr. Elliott: I introduce these exhibits.

Cross-Examination.

By Mr. Butler:

Q. I want to know first, as to your family. How large is your family, Mr. Edgecomb?

A. Three sons at home.

Q. And their ages?

A. Twenty, twenty-four and twenty-six.

Q. Occupations?

A. One of them is a mechanical engineer, the other is a civil engineer, and the other is an [electric] engineer.

1587 Q. Yourself, and Mrs. Edgecomb, I suppose.

A. I am a miller.

Q. That is your whole family?

A. That is the whole family, except the wife.

Q. Have any of you been sick in the last five or six years?

A. Yes, sir.

Q. Which one?

A. The wife has been sick.

Q. Any one else in the family?

A. Not barring bad colds, or something like that.

Q. Congestions about the throat? A. No.

Q. The lungs? A. No.

Q. Well, how did this cold manifest itself?

A. Just a bad cold.

Q. Well, how did that manifest itself? When I get a bad cold, my throat and lungs congest, and I cannot breathe as freely and my throat gets sore, and my nose inflamed. Now, did it manifest itself that way with the gentlemen members of your family, who had colds?

A. No throat trouble.

Q. Any lung trouble? A. No, sir.

Q. Any head trouble?

A. Some head trouble, yes.

Q. Do you know the effect of nitric acid fumes upon that sort of thing? A. No, sir.

Q. Did you ever have any colds, yourself?

A. Yes, sir.

Q. Quite frequently? A. No, sir.

Q. Just occasionally? A. Yes, sir.

Q. Did you ever have any doctor, at all, during that time?

A. No, sir.

Q. So, then, do you, by this testimony that your family has eaten the flour that you, yourself, have made for five or six years, and because the civil engineer, the electrical engineer, and the other engineer and yourself have not been sick, that, therefore, the flour must be improved and made beneficial to health? Is that your reason?

Mr. Scarritt: We object to that as not based upon testimony at all.

Mr. Butler: Well, what was his testimony put in here for?

The Court: He may answer.

1588 Mr. Scarritt: To show they had been eating this flour for five years and nobody had died.

By Mr. Butler.

Q. Because you haven't been poisoned to death, or because you haven't been able to diagnose sickness to these engineers, who are your sons—is that the reason you bleach, and say it improves flour? A. No, sir.

Q. Is that the reason you say that it is good to put poisonous gas described by your chemist as N2O3, into flour?

A. I do not say that, sir.

Q. Did you know this gas was poisonous?

A. No, sir.

Q. Did you hear your chemist testify yesterday that N2O3 was poisonous? A. Yes, sir.

Q. You never knew that before, did you?

Mr. Scarritt: I object to the reference to "his chemist" if your Honor please, and this line of examination,—nothing but a bull-dozing process.

The Court: It is not his chemist.

By Mr. Butler:

Q. Is the Updike Company interested in the mill that manufactured this flour that was seized?

A. This flour that was seized?

Q. Yes. A. No, sir.

Q. Is the Updike Milling Company financing this law suit?

A. No, sir.

Q. In whole, or in part?

A. Not to my knowledge.

Q. Well, would you have knowledge?

A. I think I would.

Q. What is your business connection with that company?

A. I am the manager.

Q. Do you say that the Updike Milling Company is not paying part of the expenses of this law suit?

A. Not to my knowledge.

Q. Well, would you say that you do know, and that it is not the fact?

Mr. Scarritt: He says not to his knowledge, if Your Honor please.

1589 Mr. Butler: Well, I know, but maybe he does not know what they are spending their money for.

The Court: He may answer.

By Mr. Butler:

Q. Now, will you swear that Ed P. Smith is not being paid, in whole or in part, by the Updike Milling Company, for defending this law suit? We will see whether it is his chemist or not.

The Court: Answer the question.

Mr. Scarritt: He says he does not know, and it is an unfair and improper question to ask him, when he says he does not know.

The Court: He may answer.

Mr. Scarritt: And we except to the ruling.

The Court: Answer the question, please.

A. I don't know that he is.

By Mr. Butler:

Q. Do you know that he is not, and will make your solemn oath that he is not, without any qualification?

A. No, sir. I do not know that he is not.

Q. Did you employ Ed P. Smith? A. No, sir.

Q. Wait a moment. (continuing) To bring a law suit, or suit in equity, in the courts of Iowa? A. No, sir.

Q. For the Updike Milling Company, to enjoin the marshal and district attorney of Iowa, from stopping the Alsop bleaching? A. I do not.

Q. Did the Updike Milling Company?

A. The Updike Milling Company has a president.

The Court: He did not ask you that. He asked you if you hired a lawyer.

The Witness: I wanted to define my position.

By Mr. Butler:

Q. Did you know that?

A. Will you repeat the question, please.

1590 Q. Did the Updike Milling Company hire Ed P. Smith, the lawyer who was defending this law suit, to bring a suit in equity in the United States Court, in the Southern District of Iowa, for the purpose of having adjudged the pure food law of this country unconstitutional, and an invasion of the rights of citizens?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

The Court: He may answer.

A. I don't know.

By Mr. Butler:

Q. Well, you do not know much about this Alsop litigation, do you? Don't you know that this suit was argued before this judge, by these lawyers and Ed P. Smith and myself?

A. Yes, sir.

Q. And the law held constitutional?

Mr. Scarritt: We object to that as incompetent and immaterial.

The Court: He may answer.

Mr. Scarritt: We except to the ruling of the court.

By Mr. Butler:

Q. Don't you know that? A. Yes, sir.

Q. Don't know who your lawyer was? A. Yes, sir.

Q. Wasn't it Ed P. Smith? A. Yes, sir.

Q. Didn't you hire him to do it? A. No, sir.

Q. Who did? A. I don't know.

Q. Oh. So, the Updike Milling Company loaned its name for general attack upon the constitutionality of the pure food law, to somebody else, who hired lawyers? Is that it?

Mr. Scarritt: We object to that as immaterial.

The Court: The holding of the court is, anything showing prejudice or interest is allowable on cross-examination, and for that reason, I think these questions are proper.

Mr. Scarritt: We save an exception to the ruling of the court.

1591 A. Will you repeat the question?

(Last question read by the reporter)

A. Not to my knowledge.

Q. How do you explain that the Updike Milling Company brought this suit to have this law adjudged unconstitutional, and had these lawyers arguing it for them, unless they hired the lawyers?

Mr. Scarritt: We object to that as purely argumentative, if Your Honor please, incompetent, irrelevant and immaterial.

The Court: You may answer.

A. What the president of our company might have done, in that line, I don't know. That is the reason. That is the explanation.

By Mr. Butler:

Q. So, the president of the company—Mr. Updike, I believe? A. Yes, sir.

Q. May be hiring these lawyers, here, to defend the practices of Mr. Leffange, up in Lexington, Nebraska, in making the flours? A. Possibly.

Q. So, for that reason, you say that the Updike Milling Company is disinterested here. Is that it? A. In this case.

Mr. Helm: He has not said that.

By Mr. Butler:

Q. Well, you do say that the Updike Milling Company is not interested in this case? A. Not to my knowledge.

Q. And that you are not? A. No, sir.

Q. And you come here as a non-partisan, without any feeling on one side or the other, do you? A. No, sir.

Q. You come here as a partisan, with feeling against the government, and for bleaching, don't you? A. No, sir.

Q. Do you come here as a non-partisan, with no feeling on the subject? A. No, sir.

Q. Then you come here as a partisan with feeling on the subject? A. Not necessarily.

Q. Well, now, how is that? How can that be?

1592 The Court: Oh, I think we have gone far enough.

By Mr. Butler:

Q. Did you attend the millers' meeting here yesterday?

A. No, sir.

Q. You did not take part [it] it? A. No, sir.

Q. Is color an impurity in flour, the natural color associated with the oil content of the flour? A. I think not.

Q. Why not? Never heard that it was did you?

A. No, sir.

Q. Never heard that natural color, in the interior of the wheat kernel, was an impurity, did you? A. No, sir.

Q. So, then, bleaching that out cannot be purifying it, can it? A. I don't know.

Q. Well, purifying is removing impurities, isn't it?

A. I understand it so.

Q. If the color is not an impurity, the destruction of the color cannot be purifying it, can it?

A. I would not think so.

Q. No. Neither would I. Does this gas that you bleach your flour with give off an odor? A. Yes, sir.

Q. At the agitator? A. Yes, sir.

Q. In the flour bin? A. Yes, sir.

Q. Same in the flour bin, as it is in the gas machine where the gas is made? A. I think so.

Q. Are you a practical miller? A. Yes, sir.

Q. That is your business, is it? A. Yes, sir.

Q. What is a "Cut straight"?

The Court: Let us get along, Mr. Witness. If you know, answer. If you do not know, say so.

A. I do not know.

By Mr. Butler:

Q. What is a "straight"?

A. A straight is composed of all the flour in the wheat berry.

Q. If you take ten or fifteen or twenty per cent of the patent streams, is that which is left a "cut straight"?

1593 Q. Well, you know as to what I refer, don't you? You know what I refer to, don't you? A. Yes, sir.

Q. What is that practice called in milling?

A. I don't know of the term "cut straight".

Q. What is the practice called in milling, where you are milling a straight flour, to take out some of the patent streams—a small per cent? A. Percentages.

Q. Percentages? Suppose you take out twenty-five per cent of the patent, and run all the rest together. Will the twenty-five per cent of the patent which is taken from the heart of the kernel produce lighter flour than the rest, in color?

A. Yes, sir.

Q. The straight, so cut, will be darker in color, than if the straight had not been so cut, because the whitest has been taken out? A. Yes.

Q. Now, bleaching makes flour white, doesn't it?

A. Yes, sir.

Q. Color, before bleaching, indicated something of the quality of the flour, didn't it—was an index of quality, to a degree? A. Not necessarily.

Q. Not necessarily, but it was, in fact, wasn't it? A short patent is lighter than a long patent, isn't it?

A. Yes, sir.

Q. A patent is lighter in color than a straight, if you do not bleach it, isn't it? A. Yes, sir.

Q. A straight is lighter in color than a clear, if you do not bleach it, as a rule? A. Yes, sir.

Q. Yellow berry produces a yellower flour than the turkey free from yellow berry, doesn't it? A. Yes, sir.

Q. The bleaching of a yellow-berry wheat brings it to a lighter color, doesn't it? A. Yes, sir.

Q. And, if you make a yellow-berry flour, and bleach it, and lay it a little, or much, as [it] necessary to match it up with flour that is made from turkey that has no yellow berry in it, they will look alike in color, won't they? A. Yes.

Q. Now, wheat fresh from the harvest fields, makes a darker flour and a poorer flour, than the wheat of the same
1594 kind and quality that has been put through the sweat, in the stack, and in the bin, and conditioned by nature, for milling, doesn't it? A. Not darker.

Q. Not darker? A. No, sir.

Q. But, better? A. Yes, sir.

Q. No difference in color? Do you say that the aging and conditioning of wheat does not affect the color of flour?

A. No, sir.

Q. It does not? A. I do not say that.

Q. But it does affect the color, then, doesn't it?

A. Yes, sir.

Q. The color of the flour made from the wheat that has been aged and conditioned, is lighter, is it not? A. Yes, sir.

Q. So that you can take the flour from the fresh wheat, and bleach it, and make it look like flour from old wheat that has been conditioned? A. Yes.

Q. And if the bleaching is used, it brings together the colors of all kinds of wheat, or brings them closer together, doesn't it? A. Yes, sir.

Q. Do you say that the bleaching of a flour made from a poor wheat—the bleaching of that flour makes the flour as good as the flour made from a good wheat? A. No, sir.

Q. It makes it look the same color, doesn't it, if they are both bleached wheat? A. No, sir.

Q. They do not? A. No.

Q. But they will look nearer alike, won't they? A. Yes.

Q. So, it will take the experienced eye of an expert, by comparison, to tell which is bleached and which is not, won't it?

A. Yes, sir.

Q. I have some samples of flour in evidence, here, some bleached and some unbleached. Will you undertake to tell which is which, without comparison with some standard?

A. No, sir.

Q. You cannot even tell the bread, can you?

A. Sometimes.

Q. Well, you cannot, in this bread you brought in here, can you? A. No, sir.

Q. So that the upshot of it is, this bleaching makes all flours look nearer alike than they did before the bleaching, doesn't it? A. Yes.

1595 Q. The good flours and the bad flours, the short patents and the long patents, the flours from the new wheat, and from the old wheat, from the yellow berry and from every other kind of wheat, makes them look nearer alike, and one cannot be told from the other, unless an expert tests them, or compares them? A. Makes them look more alike.

Q. Yes, sir? Do you advertise bleaching for your flour that moves in interstate commerce, in this country, on the sacks that carry the flour? A. No, sir.

Q. Give me the names of the bakers, and produce the letters, if they are in writing, who order bleached flour. Tell me their names and their addresses, every one of them.

A. I cannot name them all.

Q. Well, name all you can.

A. U. P. Steam Bakery at Omaha.

Q. By letter, or orally? A. Orally.

Q. What persons, so we can see them and bring them here and ask them why? A. Mr. Peterson.

Q. What is his first name? A. I do not know.

Q. What is his address? A. Omaha.

Q. What is the location of that bakery?

A. I cannot tell you.

Q. Did he say this to you? A. What is that?

Q. Did he say this to you, personally, that he wanted the bleached flour? A. Yes, sir.

Q. When?

A. Well, we have been making his flour—making flour for him for—

Q. (interrupting) I don't care about that. I asked you when he told you that.

A. Sometime within two or three years.

Q. How much flour does he buy in a year from you?

A. Approximately one thousand barrels a month.

Q. From you? What brand? A. Eighty per cent.

Q. Eighty per cent what?

A. Eighty per cent of the entire flour in the berry.

Q. Is it branded on the bag "Eighty Per Cent"?

A. No, sir.

Q. I asked you what brand. A. He uses his own brand.

Q. What is the name of his own brand?

A. He has no brand.

1596 Q. He uses his own brand, you told me.

A. Yes, sir.

Q. And he has no brand.

A. Yes, sir,—his own sack, I should have said.

Q. Some other baker, now, besides Peterson. Have you got any letters in your files, calling for bleached flour, from these bakers who received it so well?

A. We have, at the office.

Q. Will you produce them? A. I can, but not now.

Q. Well, you will be here long enough to wire to Omaha and get those letters.

A. Well, now, wait. I don't want to get—I think that I can.

Q. Now, can you give us the names of any other bakers, besides Peterson?

A. Now, let me explain. We are not baker millers. We are millers for the family trade. We haven't much baker trade.

Q. Oh, I see. Can you name any other baker, besides Peterson, who said to you, or wrote that he wanted bleached flour? A. I do not call them, now.

Q. You cannot call any but Peterson, and you cannot recall his first name. What is the name of the bakery, again?

A. U. P. Steam.

Q. All bread tastes alike? A. No, sir.

Q. Bread made from poor flour that is unbleached, tastes like bread made from good flour that is unbleached.

A. No, sir.

Q. Bread made from poor flour that is unbleached tastes like bread that is made from good flour, that is not bleached?

A. No, sir.

Q. Doesn't improve the taste, then? Bleaching does not improve the taste, then? A. I think not.

Q. It does not injure the taste? A. I don't think so.

Q. Does not affect the taste, that you could discover?

A. I don't think so.

Q. When did you make these tasting experiments?

A. At intervals along my line of experience.

Q. Do you sell the flour? Are you a salesman?

A. No, sir.

1597 Q. You do not have anything to do with the sales, at all? A. We have a sales manager.

Q. You, personally, do not have anything to do with the sales, do you? A. Only as it is referred to me.

Q. You have charge of the milling operation, in detail?

A. Yes, sir.

Q. Did you ever take out some flour, of the short patent—a very short patent, or some of the patent streams, and bleach the balance and sell it? A. No, sir.

Q. Are you sure? A. Yes, sir.

Q. Do you bleach all your flour? A. No, sir.

Q. Why? A. Some of them request it not bleached.

Q. Oh. What percentage of your flour do you bleach?

A. The eighty per cent of it.

Q. Eighty per cent of your flour? Do you label that, that is not bleached, unbleached flour? A. No, sir.

Q. Do you know of any one in the country who brands their flour as bleached? A. No, sir.

Q. The flour they ship in interstate commerce?

A. No, sir.

Q. You do know, do you not, a number of millers who advertise their flour as not bleached? A. No, sir.

Q. Don't you look at the milling journals, where the millers advertise their flour? A. Sometimes, yes.

Q. Well, haven't you observed in some of these, they advertise that their flour is not bleached? A. No, sir.

Mr. Scarritt: I object to this as hearsay.

A. (Continuing) No, I have not noticed it.

By Mr. Butler:

Q. Never had a dough ball in your flour, since you have been a miller? A. No, sir.

Q. How often do you clean out your agitator?

A. Never cleaned it out.

Q. How often do you clean out your spouts to get the old flour out of it?

1598 Mr. Scarritt: Out of what?

By Mr. Butler:

Q. The spouts around in the leads, and the corners.

A. We never have cleaned them out.

Q. Would you know if they had been cleaned out?

A. Yes, sir.

Q. So, you say that your spouts have never been cleaned out?

A. Not to my knowledge.

Q. And you have been at it five or six years?

A. In this mill we have not been three years, yet.

Q. Well, three years. Your agitator has not been cleaned out? A. No, sir.

Q. Have you one of these horizontal, cylindrical agitators?

A. Two, yes.

Q. Two of them, where the flour is thrown forward?

A. Yes, sir.

Q. And the fans come within a half an inch, or a short distance, anyway, from the side?

A. I don't know as to that distance.

Q. Did you ever look in the interior of those? A. No, sir.

Q. Have you not, in your mill observations, become aware that flour, exposed for a long time,—about five hundred hours, according to the testimony of Wesener—would be turned yellow by the bleaching gas, not so strong as the one in Exhibit 47, but we will say like sulphur—comparable to it?

A. Yes, sir.

Q. You have become aware of that? A. Yes, sir.

Q. Have you become aware that that is known as the xantho, or yellow reaction, which ruins flour by the action of nitric acid? A. I heard the testimony here.

Q. Well, I mean, in your milling operations, before that. Before you heard this testimony, did you know that that stuff was poisonous? A. No, sir.

Q. And you have taken no pains to keep it out of the flour that you put on the market, at all?

Mr. Scarritt: We object to that, because it is not shown that that stuff is in the flour. Expressly stated otherwise, 1599 by every witness on the stand. Nothing of that kind in evidence at all.

The Court: Well, I am not passing upon the correctness or incorrectness of that.

Mr. Butler: Well, that is in the testimony.

Mr. Scarritt: Well, he is assuming that.

Mr. Butler: I am assuming that what will happen in one agitator happens in another, and I am assuming that Wesner told the truth.

The Court: Go on.

A. I know of no accumulation of this flour in our place. I have never seen it.

By Mr. Butler:

Q. No, but you have never looked for it. Five hundred minutes, will do it, Wesner tells us, if it adheres to the wall, and you have never looked for it—never found that, never saw that in your mill anywhere?

A. I have seen it in the flour house—in the flour bin.

Q. You have seen it in the flour bin? A. Yes.

Q. Whereabouts on the flour bin?

A. On the walls of the flour bin.

Q. Now, this flour runs down into the flour bin, and more or less of that dust of the flour rises, and settles around on the walls, I suppose. A. Yes, sir.

Q. Now, in that flour bin, you smell this gas that bleaches the flour? A. Yes, sir.

Q. And you have seen, on the walls of your flour bin, this yellow flour? A. Yes, sir.

Q. That is overbleached or overtreated, haven't you?

A. Yes, sir.

Q. It is about the color of sulphur, isn't it?

A. Yes, sir.

Q. Have you ever taken any pains to avoid that getting into sacks of flour that you sell to the people for food?

A. Yes, sir.

Q. Why? A. Because it was discolored.

1600 Q. Because it would discolor it? How often do you sweep out the yellow stuff, out of your flour bin?

A. About once a month.

Q. What quantities of it?

A. Very small quantity. Possibly ten pounds out of each bin.

Q. How big is the bin that has ten pounds of this yellow flour? I mean, in feet—how long, and how broad. I don't know much about a mill, Mr. Edgecomb, and when you say a bin, I don't know whether it ought to be a large bin, or what size.

A. It is a wooden bin, six by six, probably ten feet high.

Q. And how many of them? A. Two of them.

Q. You get ten pounds of this yellow flour out of that, every month, you think? A. Yes, sir.

Q. Sulphur colored stuff? A. Yes, sir.

Q. And it adheres to the walls? A. Yes, sir.

Q. Sometimes this bin is filled to one height, and sometimes to another, I suppose? A. Yes, sir.

Q. Now, let us call this blotter 6 feet wide, and 10 feet high, and let it represent the bin. Sometimes there is a couple of feet of flour? A. Yes, sir.

Q. Sometimes there is five feet of flour? A. Yes, sir.

Q. It isn't chock-full often? A. No.

Q. But the dust rises to the top, and accumulates on the wall? A. Yes, sir.

Q. And it is from that part that you get the 10 pounds of yellow flour, each month?

A. We get it from the entire walls.

Q. But, of course, if you filled up two feet, and take it out there won't any yellow stuff accumulate on the lower part of the wall, will there?

A. Oh, yes; it adheres to the wall.

Q. But it adheres there, does it? A. Yes.

Q. So that the putting in and taking out, the flour comes right in contact with this stuff on the wall? A. Yes, sir.

Q. But you think it would take off none of the stuff on the wall, or wouldn't it take off some of it? A. Possibly.

Q. Possibly? A. Yes.

1601 Q. How did you get it off of the wall?

A. With a broom.

Q. It sweeps off readily, don't it? A. Yes.

Q. And, in packing, or shoveling the flour out of the bin—do you take it out in shovels, or how do you get that out? Does it run out? A. It is swept off.

Q. No, I mean the flour, itself?

A. It is packed out with a screw.

Q. It is packed out? A. No, it is forced out.

Q. I mean, people don't go in the bin and pack it out with the shovel, do they?

A. In the ordinary case of packing?

Q. Yes. A. Oh, no. It is packed out with a machine.

Q. Now, you wouldn't think that, if you had this yellow stuff here, three weeks and five days having elapsed since you last swept it off the wall, and you filled the bin nearly up to the top, and then when you took the machine and forced it out,—don't you think some of that yellow would come off?

A. I don't believe it would, unless you swept it off.

Q. It sticks pretty well to the wall, does it?

A. Yes. We have to sweep it off.

Q. You have galvanized pipes?

A. No, sir. All wood, lined with tin.

Q. Oh, wood? I mean, to conduct this gas?

A. Oh,—galvanized iron.

Q. All galvanized? Ever clean them out? A. Yes, sir.

Q. How often? A. Once a year.

Q. What do you get out of them?

A. Dust—brown, powdered dust.

Q. I want to show you some brown powdered dust that is in evidence here. I don't know whether we can get that so we can see it very well, to the light, or not, but if you want to, put your hands in and take out a little, or if you have a pocket-knife, or something that you can take out a pinch. (Witness does so.)

Q. That is it.

A. That is very similar to what we get out of ours.

1602 Q. You take that out of your pipe, every year—out of that galvanized iron pipe? It comes from around the corners and angles and along the pipe, or along the walls of the pipe—the entire walls, the upper side and the lower side?

A. Apparently; yes.

Q. Do you notice it is heavier at one part, than the other?

A. No, I didn't.

Q. Now, did you notice whether it was, so you would know?

A. No.

Q. I have an idea that there might be some difference, depending upon the heat near the agitators might drive the gas on, without condensation, to the agitator, and have you ever noticed whether that is true or not?

A. It seems to be coarser at some places than others.

Q. Now, which end did you notice that? Nearer the gas machine, or nearer the agitator?

A. Nearer the gas machine.

Q. Nearer the gas machine? It was coarser and more granular? A. Yes, sir.

Q. Have you an engine there? A. Yes, sir.

Q. Steam engine? A. Yes, sir.

Q. What horse-power is your dynamo for making this bleaching gas, do you know?

A. I think it is a five.

Q. How many have you? A. One.

Q. Only one, and that is a 5 horse-power. Now, about this flour that made this bread. Where did you get this flour that was five or six months old?

A. Some that I had laid away.

Q. Where did you lay it away?

A. Had it piled up on top of the vault.

Q. How's that?

A. Had it piled up on top of a vault.

Q. In sacks? A. Yes, sir.

Q. How many sacks?

A. I think there were 8 or 10 sacks there.

Q. What for?

A. Some we had just simply laid away, as samples.

Q. Samples of what? A. Of unbleached flour.

Q. What did you want them for?

A. We keep samples of sales that we make to parties.

Q. Oh,—you keep flour until it ages, to use it as samples? A. No, sir.

1603 Q. Then why did you put away these sacks?

A. We sell a man ten thousand barrels of flour, by sample: we put away a sample of that flour.

Q. Do you sell bleached flour by sample?

A. Yes, sir.

Q. Do you keep your bleached samples, too?

A. Yes, sir.

Q. Do you keep them together? A. No, sir.

Q. Why? A. Well, we don't want—

Q. You keep them near to each other, I mean?

A. Yes, they are all labelled and tagged.

Q. Yes, I am not suggesting any possibility of confusion, but what I am trying to get at, do you keep them close to each other—the bleached class and the other class?

A. Yes, sir.

Q. For five or six months? A. Yes.

Q. Now, you do know, don't you, that the flour in the bin gives off the bleaching gas, because you smell it there?

A. Yes, sir.

Q. And because it bleaches this stuff yellow, on the wall?

A. Yes, sir.

Q. It isn't within your knowledge, is it, that the bleached flour continues, in small amounts, of course,—perhaps, imperceptibly, not visibly, certainly,—to give off bleaching gas?

A. I don't know that to be a fact.

Q. You never observed that, or thought of it, one way or the other did you? A. No, sir.

Q. So that the flour that made this bread was an unbleached flour, one of these loaves—you can't tell which one—and it had been kept for five or six months, in the same place where you kept bleached flour?

A. At the time of getting this sample, there was no unbleached flour there, except the unbleached samples.

Q. Well, I know, but I am talking about the bleached.

A. We keep the two samples near each other.

Q. In what kind of a room is that—how big a room?

A. It is in our storage room, which is about 30 by 100.

1604 Q. That is the large room where you store your flour?

A. Yes, sir.

Q. Bleached and unbleached? A. Yes, sir.

Q. And sometimes you have great quantities, do you not, of freshly milled bleached flour in there?

A. Yes, sir.

Q. Now, give me an idea of how much?

A. There is frequently 8 thousand sacks in there.

Q. Is it always in sacks, or sometimes in barrels?

A. We mill nothing in barrels.

Q. Sometimes 8 thousand sacks? A. Yes, sir.

Q. Of bleached?

A. Bleached and unbleached.

Q. Well, about 80 per cent of it, bleached?

A. Yes, sir.

Q. And that, when it comes fresh from the packing rooms where you smell the bleaching gas? You take it fresh from the packing room to the storage room? A. Yes, sir.

Q. You sometimes smell a little gas around your storage room.

A. Not around the storage room.

Q. Did you ever try that?

A. I never have detected it.

Q. Well, I know, but did you ever think of it?

A. Yes.

Q. You tried that, did you?

A. Well, I have simply wondered why we didn't smell it, and I have never smelled it.

Q. You thought it was peculiar you would smell it in the flour just before it went to the storage room, and couldn't smell it afterwards?

A. Never smelled it in the flour.

Q. No, but did you smell it in the packing room—that is, your bin? A. Yes, sir.

Q. Well, you wouldn't stick your nose in flour to smell a gas coming off the flour, would you? A. Yes.

Q. Stick it right in the flour? A. Yes.

Q. And because you never smelled it when you stick your nose into the flour, that is the reason you say you don't smell it in the flour? A. Yes, sir.

Redirect Examination

By Mr. Elliott:

1605 Q. Mr. Butler asked you in reference to bleaching different kinds of flours, and various kinds. I will ask you if you wish to be understood as testifying that, if you bleach a flour from an unsound wheat, you can give it the same appearance as a flour from a sound wheat?

A. In color.

Q. In color?

Mr. Butler: Certainly.

By Mr. Elliott:

Q. If you take your grades of flour, and bleach them, is there the same relative difference, after bleaching, as before bleaching, between those grades? A. No.

Q. You think there is not the same relative difference?

A. No.

Q. Now, Mr. Butler asked you about the Updike Milling Company instituting a suit in the courts of Iowa. I will ask you if the Updike Milling Company had any flour seized in the state of Iowa by the Government? A. Yes, sir.

Q. How much? A. Four carloads.

Q. I will ask you if that flour had been bleached in the same way as you had been accustomed to bleaching flour?

A. Yes, sir.

Q. Was any change made in the manner of bleaching that flour, from the way it had been bleached before?

A. No, sir.

Q. What happened to that flour in Iowa, or to those seizure suits in Iowa?

Mr. Butler: Wait a moment. Objected to as immaterial and irrelevant.

Mr. Elliot: No, it isn't irrelevant.

Mr. Butler: Wait a moment. Now, let us have a ruling upon that.

Mr. Scarritt: That is in response to his suggestion, if your Honor please. He asked about this equity suit, and went into the whole proposition.

Mr. Butler: Oh, no.

The Court: He may answer. The case was dismissed.
1606 That's all there was to that. I suppose that's what you want.

A. The cases were dismissed.

By Mr. Scarritt:

Q. By the Government? A. Yes.

Recross Examination

By Mr. Butler:

Q. Now, there was one seizure made of flour which you sold to the United States Government, Mr. Edgecomb?

A. Yes, sir.

Q. That was delivered at Omaha? A. Yes, sir.

Q. In the state of Nebraska? A. Yes, sir.

Q. Before it moved in interstate commerce? A. Yes, sir.

Q. That flour was sold to the United States Government as a straight flour, was it not?

A. I don't know as to the grade, now. I haven't thought about it since.

Q. Now, do you know Mr. Evans?

Mr. Butler: Mr. Evans will you please stand up?

(Does so)

A. I don't know his name, but I have seen him in the mill.

Q. As a government inspector? A. Yes, sir.

Q. At the time that flour, which was delivered to the United States government, for its army was being milled, and packed, wasn't it?

A. I don't know as to that; I know he was there in the mill.

Q. You will not say it was not that day, will you?

A. I do not understand the question.

Q. You will not say that he was not there at the time you milled and packed that flour, that you sold and delivered to the United States government in Omaha, which was seized afterwards, after it had been shipped by the government to another point of consumption in the state of Iowa. You remember the case don't you? A. I remember the sale.

Q. Now, will you say that Mr. Evans, who has just stood up here, was not present in your mill when that flour was being milled and packed? A. No, I do not think he was.

1607 Q. Will you swear he was not?

A. That is my recollection.

Q. How do you fix that it was not at that time?

A. Because I know when he was there, and I know when we was milling the flour.

Q. When was he there? A. I cannot give you the dates.

Q. Now, isn't it the truth and don't you know it to be the truth that that flour was sold to the government on sample as straight flour? A. It was sold on sample.

Q. And the sample was a straight flour, wasn't it?

A. I think that is, for their requirements.

Q. Now, don't you know that, out of that carload of flour that you sent to the government, you took off some patent and that that which was left was a "cut-straight." And that you bleached it, and made it look like a full straight? Don't you know that to be true, Mr. Edgecomb?

A. Can I ask for more definite information?

Q. Yes, ask me anything you want to.

A. You ask so many questions in one there I don't know how to answer you.

Recess was then taken for five minutes.

By Mr. Butler:

Q. Mr. Edgecomb, when the Court paused for the customary midsession recess, I was intending to inquire of you whether or not Mr. Evans, who stood up, was not present at the time of the manufacture and packing of the flour, that you delivered to the United States Government at Omaha, which you did not put in Interstate commerce, and which was subsequently, after the government had moved it, seized under the Pure Food Law because it was bleached, being one of the cases that Mr. Elliott brought forward as a dismissed suit in Iowa? Now, do you remember positively that Mr. Evans was, or was not present at that time?

A. I don't know as he was. He might have been.

Q. He might have been?

A. Yes. I know he was there,—

Q. Now, in cross-examination I chose not to bring up this incident at all, but I did ask you what a "cut straight" was, and you told me you did not know, but I think we agreed that the straight is all of the flour content of the wheat except the low grades. A. Yes, sir.

Q. And that, if you took out fifteen or twenty or twenty five per cent of the middlings from the center of the kernel that that would be a very short patent and would be a very quite, attractive looking flour without bleaching. That is true, is it not? A. No, sir.

Q. It would be a dark flour?

A. No, it would not be dark, it would be yellow on our wheats.

The Court: Well, we use the word "Yellow" for dark, sometimes, here.

By Mr. Butler:

Q. Then is your short patent darker in color?

A. Yellower, yes, sir.

Q. Than the straight? A. No, sir.

Q. Well, what I am trying to get at is, relatively speaking a short patent is the finer flour—sells for more.

A. Yes, sir.

Q. And if you take a short patent like fifteen per cent out of a straight, you can bleach that and make a very beautiful attractive white flour, that will sell for the top notch?

A. Yes, sir.

Q. Sell for more than the straight? A. Yes, sir.

Q. I believe if you bleached the 85 or 80% that is left which I call the "cut straight" because some millers told me that is the phrase known to the trade, that could be made white, too, by bleaching? A. It can be made white, yes, sir.

Q. So that, by cutting the straight, the miller would profit to the extent of the excess of price of the patent, that is, if you sold me—agreed to sell me a straight flour but instead of doing that cut twenty five per cent out of the straight and bleached it, and made a very high patent, and sold it to brother Elliott for the price of patent, and then gave me the
1609 cut straight, bleached down so it would be a nice color, the miller would profit to that extent, wouldn't he?

A. I should think he would.

Q. Now, isn't that the thing that you did do with that car that was packed for the government and delivered at Omaha. A. No, sir.

Q. Were you in charge of the milling operation there that day? A. In a general way.

Q. Well, did you see that flour milled?

A. No, sir.

Q. Did you not make two kinds of flour when that flour was being milled? A. For the government?

Q. Yes. A. Not to my knowledge.

Q. I don't mean make two for the government but make two kinds and gave one kind to the government, and kept the other under "Updyke's Best." A. Not to my knowledge.

Q. Will you swear that did not occur?

A. Not to my knowledge.

Q. Will you swear that you know that did not happen?

A. Yes, sir.

Q. You did not see it milled? A. No.

Q. But if somebody who did see it and saw part go into sacks labelled "Updyke's Best," and the other part go into

the government's lot, you would think it was done, wouldn't you?

A. Well, it would depend on what he knew about it.

Q. It would depend on what he knew about it? Now, did you never hear of a cut straight? A. Yes.

Q. Did your mill never take out a short patent and bleach it and call it "Updyke's Best"? A. Yes, sir.

Q. What percentage. A. We make twenty per cent.

Q. From fifteen up? A. Yes, sir.

Q. From fifteen up to where? A. Up to eighty.

Q. When you took out the fifteen per cent do you bleach it?

A. No, sir.

Q. You sell that without bleaching? That doesn't need any bleaching does it? A. We don't think so.

Q. Do you bleach what is left? A. Yes, sir.

1610 Q. Why? A. Makes it whiter.

Q. Because it needs bleaching, doesn't it?

A. Yes, sir.

Q. And you bleach what is left,—the other eighty-five per cent until it looks like the fifteen per cent high patent, doesn't it?

A. Now, you have led me astray here; we do not bleach our clears at all. We bleach our eighty per cent.

Q. You bleach your straights.

A. We bleach our straights and our percentages. We do not bleach our clear.

Q. Now your cut straights.

A. I don't know anything about the cut straights.

Q. When you take out a fifteen per cent patent, you have agreed it is a cut straight, don't you.

A. You may term it that. I don't term it that way.

Q. What do you term it. A. I term it a "cut patent."

Q. Oh, that is a short patent. A. Yes.

Q. It is also a short straight, isn't it.

A. Well, one would increase in flour as the other decreased.

Q. All right. We have got our terms. Maybe I was mistaken "Cut patent." I will mark that down. You make cut patents down to fifteen per cent, don't you.

A. Fifteen per cent of clear.

Q. Oh, no, the cut patent contains fifteen per cent middlings doesn't it. Cut patent is a middling flour isn't it, made from middlings. A. Yes, sir.

Q. And you make that as short as fifteen per cent, don't you?

A. Oh, no, we make it all patent but fifteen per cent.

Q. Then that is the clear. A. That is the clear.

Mr. Elliott: I was just going to suggest to you that he was talking about the other end of it, and you thought he meant the fifteen per cent was this patent.

Mr. Butler: Oh, yes, I see.

Q. So, it is the clear you do not bleach. A. Yes.

Q. Because it will not age clear flour? This process will not age clear flour. A. Yes.

1611 Q. Then why don't you bleach it so that it will be better?

A. I never thought that it improved the selling qualities of the clear by bleaching it.

Q. No, but it makes it better? A. It ages it.

Q. Well why don't you bleach it. Because it doesn't improve the selling qualities isn't it. A. Yes.

Q. So you do not bleach anything except when it improves the selling qualities, isn't that it.

A. And the baking qualities.

Q. It would improve the baking qualities of the clear, wouldn't it? A. Yes, sir.

Q. But it would not improve the selling qualities.

A. No, sir.

Q. And that is the reason you don't bleach it? A. Yes.

Q. So, then, the selling qualities is what must be improved or you won't bleach it? A. No, sir.

Q. That is true, isn't it? A. No, sir.

Q. What flour do you bleach, when it doesn't improve the selling qualities? A. There isn't any flour.

Q. So all flour that you bleach is improved as to selling qualities. A. Yes, sir.

Q. And you bleach none unless you can make it sell better by bleaching. A. Yes, we bleach it for aging.

Q. Well, but it makes it sell better? A. Yes.

Q. So unless it sells better you do not bleach it?

The Court: Answer, let's get along please. Answer that.

A. It makes it sell better.

By Mr. Butler:

Q. It that the only answer you will give me to that question? A. We bleach it because it sells better.

Mr. Butler: That is all.

The Witness: I would like to add because it ages.

The Court: It sells better and because it ages it.

1612 Mr. Butler: I want to ask another question that I overlooked. Do you label your flour "patent"?

A. I think our Updikes "Pride of Omaha" is labelled patent.

Q. Was any of the flour that Mr. Elliott brought out that was seized in Iowa labelled "patent?"

A. I don't know as to that.

Q. You know it was not don't you?

A. That is my recollection, that it was not.

Q. And you know you were instructed by your lawyer, Mr. Smith not to label your bleached flour "Patent", after Secretary Wilson's order and before those seizures. You know that, don't you. A. No, sir.

Q. Well, don't you know that that was the instructions to this organization of millers, not to label their bleached flour "Patent." A. Not to me.

Q. But you did not label it patent? A. No, sir.

Q. Wasn't it good enough to be labelled patent?

A. Yes, sir.

Q. Then why didn't you label it patent? You used to. Why didn't you label that patent.

A. We were threatened with mis-branding.

Q. Yes, sir. You expected that car to be seized, didn't you? A. We expected—

Q. Not that you sold the government but the other?

A. Yes, all of our flour.

Q. And you made a nice flour, didn't you, as nice as your patent, and you didn't label it patent? Isn't that the truth, because you expected it to be seized? Isn't that so, and you were fixing up flour and your brand so it could be seized, so you could win some suits, wasn't that it? A. No, sir.

Q. Why didn't you label it patent.

A. It was labelled just as our flour was always labelled.

Q. Now, didn't you label that very kind of flour "Patent" before the order, and wasn't it, as you just stated, to avoid a charge of mis-branding, that you did not label that "Patent" because you expected it to be seized.

A. We expected all of our flour to be seized.

1613 Q. And that is the reason you did not label it "Patent" isn't it?

A. I don't know what it was labelled. I cannot testify to that.

Q. And you do not know the reason do you? A. No, sir.

Q. The president attended to that, didn't he?

A. No, sir.

Redirect Examination

By Mr. Elliott:

Q. About this flour that was sold to the government. I want to ask you if that flour was sold on sample?

A. Yes, sir.

Q. And did the flour that you delivered to the government come up to that sample.

A. It was inspected in the mill, and accepted.

Q. That is, did the government send some one there to inspect the flour before it was delivered.

A. They always do that.

Q. And they did do that in that case, did they?

A. That is my recollection.

Recross Examination

By Mr. Butler:

Q. Where is the specifications? The government prepares specifications.

A. Yes, I haven't them with me.

Q. That calls for straight flour, doesn't it.

A. Yes, sir.

Q. So that this talk about selling on samples does not make any difference; you were bound to furnish a straight flour, weren't you if you kept up to your contract. Now, weren't you?

A. Well, we didn't give them a straight flour.

Q. No, I know you did not.

A. We never do, anybody.

Q. No, but the government's specifications call for straight flour and always do? A. Yes, but they don't—

Q. They don't get it.

A. They don't know what straight flour is.

Q. I know.

A. Now, here, let me explain. Let me explain, will you please.

Mr. Elliott: Yes, sir, you can explain.

Mr. Butler: Wait a minute.

1614 Mr. Elliott: No, let him explain, Mr. Butler.

The Court: Let him explain.

A. Nobody makes a straight flour. It would not be a commercial article. We all draw off a ninety—five per cent which is known as "Red dog" or low grade.

The Court: You mean five per cent.

The Witness: Five per cent. We all draw off five per cent of low grade, or "red dog", and the rest of it is commercially straight grade flour. The government nor nobody else would have accepted a strictly straight grade flour.

By Judge Scarritt:

Q. And you mean by "Straight grade" everything that comes out?

A. Everything that comes out of the wheat berry.

By Mr. Butler:

Q. Bran and all?

A. No, sir, but the finer impurities that are taken out of the low grade being about five per cent. This makes it a commercial, so-called.

Q. Whole wheat flour containing the whole wheat is called graham, after the man that started it isn't it?

A. No, sir.

Q. What is graham?

A. Graham is the entire berry ground up.

Q. Well, that included the bran doesn't it?

A. Yes, that contains the bran.

Q. That is what I said.

The Court: That is, whole wheat flour?

The Witness: This graham.

The Court: Well, whole wheat isn't it too.

The Witness: No, sir, not the commercial whole wheat flour.

By Mr. Butler:

Q. Now, you told me since the recess, if my memory is right as to the time,—I know it is as to the fact—that straight flour is the whole flour content except the low grade?

A. Yes, sir.

Q. That is known to be true by millers?

A. Yes, sir.

1615 Q. It is known to be true in the trade?

A. Yes, sir.

Q. It is known to be true by the government purchasers for the army? A. I don't know as to that.

Q. And they call for a straight, don't they, and don't get it. A. They get that five per cent off.

Q. Now, will you say that that is all that was taken off of there. A. To my knowledge, yes.

Q. To your best knowledge? A. Yes, sir.

Q. If it was done you did not see it done? A. No, sir.

Q. Do you know the car number that took it?

A. No, sir.

Q. Was it put in a car for the government?

A. It was loaded in a car, yes.

Q. For delivery there at Omaha? Where is your mill—at Omaha? A. North 16th.

Q. And to deliver to the government quarters there in Omaha did it move in a car?

A. They ordered it from the mill into the car.

- Q. Can you advise us the car number. A. Not now.
 Q. You could wire up and get it? A. I could.
 Q. You could wire up and get it? A. Yes, I think so.
 Q. And the date? A. I think so.
 Q. And the contents. A. Yes, sir.
 Q. The number of sacks? A. Yes.
 Q. Will you do that for us? A. I can, yes.
 Q. And hand it to me as soon as you get it?
 A. Shall I send it to you to-morrow.
 Q. Do you want to go home. A. Yes.
 Q. Very good. A. Sir?
 Q. If you will, send it to me.
 A. Yes, I will send it to you and give you the full information.
 Q. Give us the full record of the car? A. Yes, sir.
 Q. Give us the name of the man who milled it? Now, the man who would know. The man who would know, not by hearsay, but the man who would know himself what went into it,—what streams. A. Yes.
 1616 Q. Did you ever have any flour returned to you that was bleached? A. Not to my knowledge.
 Q. Did you ever have any bleached flour returned to you?
 A. Not to my knowledge.
 Q. Did you sell some to an industrial school,—some bleached flour, and they returned it to you because it was bleached?
 [Q.] I believe we did, as you refresh my memory.
 Q. When was that?
 A. I could not give you the dates. About the same time that we had the flour attached by the government.
 Q. Sometime within the last year?
 A. Yes. They refused the flour on the ground it was bleached.
 Q. What is that industrial school? Was that a state institution? A. Yes, sir, a state institution.

The Court: What state?

The Witness: State of Iowa.

By Mr. Elliott:

- Q. Was that flour that was delivered to that school the flour that was seized by the government? A. No, sir.
 Q. That wasn't the flour?
 A. No. We were awarded the contract for the flour for the industrial schools, and at the time the agitation came up as to the bleached flour they returned some bleached flour.

By Mr. Butler:

- Q. Will you define "Updyke's Best", whether it is a clear, patent straight, or what it is?

A. It is eighty five per cent.

Q. Always? Always eighty five per cent.

A. Varying from eighty to eighty five per cent.

Q. Always? That is an eighty five per cent patent? You do not label it "patent" but [it] what is known as a patent, isn't it?

A. Speaking from a miller's standpoint it is patent, yes, sir.

Q. What is the "Pride of Omaha?"

A. That is the same grade.

The Court: What?

A. The same grade.

By Mr. Butler:

1617 Q. The same as Updyke's Best?

A. Same as Updyke's Best and same as Pride of Omaha

Q. They are the same, are they?

The Court: Same flour you brand differently.

A. Yes.

Whereupon Court adjourned to meet again at 2 o'clock P. M. Wednesday, July 22nd, 1910.

Pursuant to adjournment, court met at two o'clock P. M., Wednesday, June 22nd, 1910, and proceeded with the trial of said cause further as follows:

Adolf Boettler, being called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. State your name. A. Adolf Boettler.

Q. What is your residence? A. St. Louis.

Q. What is your business? A. Baker.

Q. How long have you been in the baker business?

A. Approximately thirty-six years.

Q. What is your present connection with the baking business?

A. I am president of the American Bakery Company, St. Louis, consisting of seven bakeries.

Q. Who does the buying of flour for that concern?

A. I do.

Q. Approximately how much flour do you buy in the course of a year, for those seven bakeries?

A. About one hundred and fifty thousand barrels.

1618 Q. I will ask you if you have ever bought any bleached flour. A. Yes, sir.

Q. I will ask you if, in buying flour, you ever distinguish between bleached and unbleached flour, on account of bleaching, or do you buy either?

A. I buy either, if it has the quality.

Q. Have you ever bought any flour from Mr. Larabee, of Kansas? A. Yes, sir.

Q. Have you bought flour from Mr. Larabee, knowing it was bleached? A. Yes, sir.

Mr. Butler: Wait. I think we will object to that as incompetent and immaterial.

The Court: Who is Larabee?

Mr. Elliott: Larabee is a miller at Hutchinson, Kansas.

The Court: Who is he? I do not recall him.

Mr. Scarritt: We will have him on the stand.

By Mr. Elliott:

Q. The question is, have you bought flour from Mr. Larabee, knowing it was bleached? A. Yes, sir.

Q. Now, I will ask you, Mr. Boettler, what, in your experience, is the effect produced in flour, as to its baking qualities, and so forth, of bleaching it?

A. In my opinion, at the early stages—I mean, at the early crop, artificial bleaching ages it the same as the natural bleaching, and thereby prevents what we call sweating.

Q. And what change, if any, does it make in the color?

A. In the baking, you mean?

Q. In the color of the bread or loaf.

A. Well, bleached flour has a whiter color than unbleached.

Q. That is, the loaf from the unbleached?

A. Yes, than the unbleached, when it is fresh ground.

Q. Now, I will ask you if you have ever examined loaves of bread made from bleached and unbleached flours, and if so, have you noticed any differences in odor or taste?

A. None whatever.

Q. First, you have made such examinations, I understand.

A. What is that?

1619 Q. First, you have made such examinations?

A. Certainly,

Q. And you say you have found no distinction?

A. None whatever.

Q. Have you ever known the baking qualities of flour that has been bleached, to be impaired by such bleaching?

A. We have had it in the various plants, knowing it to be bleached, and never any difference was noticed.

Cross-Examination

By Mr. Butler:

Q. In your purchasing of bleached flour, do you habitually require them to tell you whether it is bleached or not?

A. Not always, no, sir.

Q. Generally?

A. If I would suspicion it was bleached, I would ask them whether it is bleached.

Q. You want to know, don't you?

A. Oh, I don't always make a practice of that; no.

Q. No, but you generally ask?

A. No, sir. No, sir.

Q. Well, if you suspicion it, you always ask?

A. If I think it is rather white, I ask them whether it is bleached, and I have applied, heretofore, the so-called government test, with that acid.

Q. You keep the acid on hand, to test it?

A. Oh, I have tested it on old flour, unbleached, and found the same results.

Q. So, you cannot tell? A. No.

Q. So, you are not skillful enough even to tell with the government test?

A. I am not a chemist.

Q. Don't you think it would be a good way to have them brand their flour "Bleached"? A. I think so, yes.

Mr. Scarritt: We object to that as incompetent, irrelevant, and immaterial, invading the province of the jury.

The Court: He may answer.

Mr. Scarritt: We except.

By Mr. Butler:

Q. You do not find the word "Bleached" on the sacks, 1620 very often, do you?

A. I have never taken notice of that. Never asked it, or anything.

Q. You are familiar with the flour market in St. Louis, aren't you. A. With what?

Q. You are familiar with the flour market in St. Louis?

A. Well, you mean St. Louis flour, or the St. Louis flour market?

Q. No, the flour on the St. Louis flour market.

A. The St. Louis flour market—that is, the price, and so forth? Yes.

Q. And the kinds of flour, and so forth?

A. The flour we use for our own purposes, is not two per cent St. Louis flour. Comes from Kansas and Minnesota.

Q. But you are familiar with the market down there?

A. Why, certainly.

Q. Do you know of any bleached flour advertised in the newspaper, that is bleached?

A. Not that I know of.

Q. You do know some who advertise it is not bleached, don't you? A. Yes.

Mr. Scarritt: We object to that as irrelevant.

The Court: He may answer.

Mr. Scarritt: Save an exception.

By Mr. Butler:

Q. And you cannot tell by looking at flour whether it is bleached or not, can you?

A. Well, I'll tell you, I would not always swear to it, that it was bleached, or not. I have seen flour that was not bleached, looked as white as bleached, and I have seen flour that was bleached, and you could not tell the difference.

Q. Mixed up every way, isn't it? Sometimes the bleached flour is not as white as unbleached and sometimes it is whiter?

A. That depends on the flour that is bleached.

Q. But bleaching flour makes it whiter, doesn't it?

A. In a measure, yes.

Q. Somewhat whiter?

A. But it doesn't improve the quality.

Q. Not a bit? A. No.

Q. All it does, is make it whiter?

A. It may deceive the eye.

1621 Q. That is right. May deceive the eye, and the eye is what you use to go by in buying flour?

A. Well, the eye, as applied to one individual, as against another is very deceptive.

Q. I know, but I am speaking now, about ordinary men having to believe what they see. They have to rely upon their eyes, and what they see?

A. Well, if you ask me that question—I have gone among our works, almost every day, nearly, and no two of the men have the same opinion about color.

Q. But what I am trying to get at is this; do you know the flour called "patent"? A. So-called patent.

Q. A good, low per cent patent, is very good flour, if it is made from good wheat, isn't it?

A. My judgment on flour is, that the patent, and the quality, depends entirely upon the character of wheat that the miller is grinding.

Q. But I say, if it is good wheat, and a nice, short patent, it is a good flour?

A. What do you mean by "short patent"?

Q. Fifty per cent.

A. There is no such thing made as a fifty per cent patent, by any mill.

Q. A seventy per cent.

A. Very little of that. The average merchantable flour is, if you use the term "patent", it is very misleading. The term "patent" is very misleading, or, rather, the percentage is very misleading, because it depends upon the quality of the wheat that the miller grinds.

Q. And you do not think that bleaching will make good flour out of poor wheat? A. No, sir.

Q. It will make white flour, though?

A. Well, that, I am not experienced enough to tell, because I don't look. If I see poor flour, irrespective of color, I don't buy it.

Q. Now, before this bleaching came on, did you used to buy flour?

A. Yes, sir. Certainly. I have bought flour for over thirty years.

Q. There were a good many different kinds of colors, weren't there?

A. Not so very much difference in the colors, when it comes to a flour that comes from certain parts of the country.

Q. Good flour always had a pretty good color, didn't it?

1622 A. Yes. Should have a good, solid color.

Q. Yes.

A. And it may be yellowish, or may be creamish, or white.

Q. But the creamish, is the beautiful part of it, isn't it?

A. Yes, sir, in the eyes of an experienced man, but the public, generally, don't want it.

Q. But you are an experienced man? A. Yes.

Q. Light cream color of the high patent, from the good wheat—that is the most beautiful flour in the word, isn't it?

A. Right you are, sir, but—

Q. (Interrupting) And when you bleach—

Mr. Scarritt: (Interrupting) Let him finish.

By Mr. Butler:

Q. But what?

A. But if you bleach that very same flour, it does not deteriorate it.

Q. It does not poison it?

A. It does not hurt it any.

Q. I am not talking about that. Now, if all the flour was of the beautiful, creamy color of an honestly milled, honest patent, from good wheat, it would be good enough for anybody, wouldn't it? A. Well, I will answer that.

Q. In color.

A. On fresh flour, for instance, I would prefer bleaching, on fresh, new wheat, I mean, under the same conditions.

Q. But you know fresh wheat is not fit to mill, don't you?

A. Oh, I beg to differ with you. I beg to differ with you. We have—

Q. (interrupting) Don't you know that all the millers keep a little old wheat, and mix it in with the fresh, and blend it, and then bleach it, and sell it as high patent, old flour?

A. They could not get the wheat, last year, to use that.

Q. But they bleach it, and make it white, like old wheat flour, wouldn't they?

A. If they don't put the quality into the flour, they can make it ever so white, and when the baker bakes it, it isn't fit to bake.

Q. Does bleaching improve the gluten?

A. It don't improve it, no, sir, and it don't help it.

1623 Q. Does aging improve it?

A. It don't either. It improves color.

Q. So, you are the kind of a baker that says that storing of good, honest flour for three months, doesn't improve that?

A. It improves it in color.

Q. That is all?

A. Yes, sir, and it dries it out, and of course it has more absorption, but it doesn't improve it in color, any more than drying it out.

Q. Now, let us be clear about that. From your experience in thirty-six years as a baker, you say the truth is, that the natural aging of flour does not improve anything, except the color and drying it out a little? It does not improve the gluten?

A. From our standpoint, it will take more absorption, because it is drier than the fresh milled flour.

Q. You like it better because of that, do you?

A. Because it is drier.

Q. Don't you know that hot air would dry it out?

A. I don't know whether hot air would dry it out. No it does not.

Q. Hot air does not dry flour?

A. It don't make that chemical change that nature gives wheat, from its earliest stages, up to the time it ages.

Q. Then you find there is a chemical change in the natural aging? A. In my opinion.

Q. And hot air will drive out water, but it won't work the chemical change, will it?

A. I don't think so. I am not a chemist.

Q. No, I know you are not, but I would rather have the judgment of a sensible man, who has had a large amount of experience, than some chemists I have seen.

A. So-called experts.

Q. So-called who make a business of being experts. You say though, that your observation is, that there is a chemical change in the flour?

A. At certain seasons of the year, in my opinion.

Q. And you say that improves the flour, don't you?

1624 A. After it has gone through that process, it is improved.

Q. Well, now, you don't know what chemical change takes place when this poisonous gas is put into flour, do you?

Mr. Scarritt: We object to that assuming that poisonous gas is put into flour.

Mr. Butler: Everybody has testified to it, who has testified on that subject.

Mr. Scarritt: It doesn't make any difference.

The Court: Go on.

A. I say that the artificial bleaching hastens the process along. That is my opinion.

By Mr. Butler:

Q. You cannot find out just what the chemical change is?

A. No.

Q. Now, good patent flour, made from good old wheat,—does that have to be bleached, too?

A. Not necessarily, no.

Q. Does it improve that, too?

A. I don't know. I haven't followed that.

Q. Well, this flour that was seized here, was made from what the millers call "first quality, hard wheat" and it was old, because it was May, and the wheat was raised last year. Now, if that was "first quality, hard, old wheat", it did not need any bleaching, did it?

A. If it was Nebraska, and they wanted color.

Q. If it was flour made out of yellow berry, they would have to bleach it, to make it look like flour that was not made out of yellow berry wheat?

A. Oh, I don't know that it would do any harm.

Q. I am not talking about the harm. The color doesn't do any harm, either, does it? A. No.

Q. But, if this flour was made out of yellow berry, and they wanted it to look like flour that was not made out of yellow berry they would have to bleach it, wouldn't they?

A. Either naturally, or properly by the process. I don't know. I am not familiar enough with Nebraska flour, because we don't practically, use it.

Q. You don't know much about that?

A. We don't, practically, use Nebraska flour. We never did.

1625 Q. But you do know yellow flour bleaches white, don't you?

A. To what extent, I don't know. Of course, any flour will bleach, if they bleach it.

Q. Did you ever see these bleachers working?

A. Yes, sir. Saw it once.

Q. Do you know they can bleach it until it turns a dead white, and then that it turns yellow, like sulphur?

A. No, I do not know that extent.

Q. Don't you know that they can take the yellow berry, just as this miller told us this morning—take the yellow berry and bleach it, so it will look like the flour where there is no yellow berry in it?

A. I am of the opinion if they over-bleach it, it will ruin the flour.

Q. Poison it? Don't you think so?

A. They may ruin the strength of it.

Q. And poison it, too? A. I don't know.

Q. (Showing the witness an exhibit) You don't think flour that is colored that way is much good?

A. No, I would not use it, but we have used thousands of barrels of bleached flour, but we have never had anybody coming back and saying they were getting sick.

Q. What makes you think it will spoil the flour if they over-bleach it? Who told you that?

A. That was in casual talk with flour men, and flour dealers.

Q. Flour dealers? A. I never spoke to millers about it.

Q. So, it is common knowledge among the millers and flour dealers of the St. Louis market, that, if it is bleached too much, it spoils the flour, is it?

A. That is the talk of some—the expression that some make. I have no verification of it.

Q. You believe it, don't you?

A. I don't know whether it is so or not.

Q. You do not know whether it is so?

A. Because I am not partial on bleaching.

Q. Now, let me see. Do you make cake, down there?

A. Oh, yes.

1626 Q. Did you try this bleached flour, to make your cake with?

A. We use winter wheat for that, and we don't care whether that is bleached or not. We don't inquire about that, at all.

Q. Does it improve the winter wheat?

A. In cake flour, it is an entirely different proposition. Cake flour is winter wheat.

Q. Do you ever use any bleached flour to make cakes with?

A. Not that I know of. I might, and I might not, because we do not inquire about it. We just want white flour.

Q. Do you use eggs, when you use flour to make cakes?

A. Yes, sir.

Q. What kind of eggs do you use?

A. We use eggs that we buy in the market.

Q. Well, I know, but do you use preserved eggs?

A. We use case eggs.

By the Court:

Q. Use what? A. Case eggs,—shell eggs.

By Mr. Butler:

Q. Now, let me be clear about that. Is there such a thing as eggs preserved with borates?

Mr. Scarritt: We object to that as immaterial.

Mr. Butler: I want to find out how that works with bleached flour.

Mr. Scarritt: It has got nothing to do with the issues in this case.

The Court: Go on.

A. There are preserved eggs, but I don't know what they are preserved with.

By Mr. Butler:

Q. Did you ever try preserved eggs, to make cake with unbleached flour? A. Undoubtedly.

Q. Now, I would like to know where you got those eggs and how they were preserved.

1627 Mr. Scarritt: We object to this line of testimony, if Your Honor please,—immaterial.

The Court: He may answer.

A. The eggs we used for some time were canned eggs.

By the Court:

Q. What? A. Canned eggs.

By the Court:

Q. Canned? A. In tin cans and kept in cold storage.

By Mr. Butler:

Q. In shells? A. Oh, no. Cracked.

Q. You mean liquid eggs? A. Liquid eggs.

By the Court:

Q. Make cakes with them?

A. Make cakes with them and nobody ever complained. They were guaranteed to us, and the Pure Food Act, when they notified us, we discarded them.

By Mr. Butler:

Q. Did you hire any lawyer to find out that the law was unconstitutional?

Mr. Scarritt: We object to that as absolutely immaterial and improper.

The Court: Objection sustained.

By Mr. Butler:

Q. Now, did you ever try those liquid eggs—these canned, liquid eggs, no shells, I think, at all—

A. (Interrupting) No shells at all, no.

Q. How big a can do they come in.

A. I would have to refer to the other gentleman.

Q. Well, you may ask him.

A. (To the party referred to) I believe ten-gallon cans, wasn't it?

Party referred to: Forty-four pounds to a gallon.

A. (continuing) Forty-four pounds to a gallon.

1628 By Mr. Butler:

Q. How big is a forty-four pound can of liquid eggs?

Mr. Helm: It is forty-four pounds.

By Mr. Butler:

Q. What size is it. Is it as big as this waste basket?

A. It is a square can.

Mr. Scarritt: I object to this as irrelevant and immaterial.

Mr. Butler: I want to find out how it works with bleached flour.

Mr. Scarritt: What have eggs got to do with it?

By Mr. Butler:

Q. Are eggs used by bakers? A. I should think they are.

Q. Yes. Eggs used with flour? A. Yes, sir.

Q. Now, you have used these liquid, preserved eggs, with unbleached flour, have you?

A. Well, I don't know whether the flour, for that purpose, was bleached or unbleached.

Q. Now, did you ever notice any difference in the flavor of the cake made by bleached flour and preserved, liquid eggs, from cake made from honest, unbleached flour, and fresh hens' eggs?

Mr. Scarritt: We object to that as irrelevant, incompetent and immaterial, and having nothing to do with the issues in this case, and move to strike out the improper remarks of counsel assuming that one flour is "honest", and another flour is dishonest.

Mr. Butler: Well, I will leave out the word "dishonest". That was improper, Judge Scarritt.

Mr. Scarritt: Of course, it would be improper. This is not a justice of the peace court.

Mr. Butler: I will withdraw it. I would not put a question that you did not like for anything in the world, Judge Scarritt.

Q. Now, let us take case of honest, bleached flour—of
1629 honest bleached flour—

Mr. Scarritt (interrupting): We object to that. That is the very thing he withdrew.

Mr. Butler: No, I said before "honest unbleached".

Q. We will say "bleached flour", then and unbleached flour. Cake made with the bleached flour and liquid, preserved eggs,—how does its taste compare with the cake made from the unbleached flour, and fresh hens' eggs, if you have ever tried the latter?

A. That would require a Philadelphia lawyer to determine.

Q. No baker could tell? A. No.

Q. Now, did you ever notice any difference in the taste of bread stuffs, made from preserved eggs, and bread stuffs made from fresh hens' eggs?

A. I will answer that. My folks get the same stuff that we bake, at home. I am not a cake eater, but I have never heard them to kick.

Q. And never killed them either, did it?

A. No, and they are healthy, too.

Q. What are their occupations—civil engineers, and locomotive engineers? A. Well, they are neither.

Q. Does bread have any taste? A. Certainly does.

Q. Does it have any odor?

A. It will have odor, if you don't handle it right.

By the Court:

Q. What? A. If you do not bake it right.

By Mr. Butler:

Q. But I mean bread baked right, does it have any aroma?

A. It has a certain aroma, due not only to the flour, but the manner in which you bake it, and the ingredients you put into it.

Q. Well, now, let us see (handing the witness a loaf of bread). See if you get any aroma from that loaf, right there.

A. It has got the regular flour aroma, and there is no shortening in it.

Q. How about this one? A. I can tell no difference.

Q. You cannot tell any difference between the two?

1630 Mr. Scarritt: What are these?

Mr. Butler: Exhibit 247 and 248.

By Mr. Butler:

Q. Did you ever have any flour that you could tell the difference between—

By Mr. Scarritt:

Q. (Interrupting) One is bleached, and one is unbleached. Which is it. A. I do not know.

Mr. Scarritt: One is bleached by nature and the other is by the Alsop process, and there is no difference.

Mr. Butler: Which is which?

Mr. Scarritt: Do you want me to go on the witness stand?

Mr. Butler: You have not called any witness who could tell, yet.

Mr. Elliott: Our own witness said he could not tell the difference.

Mr. Butler: That is what I say. Nobody can tell. Not if you store flour in a gas room. They will all be alike.

The Court: Let us get on.

By Mr. Butler:

Q. Does the bread from winter wheat smell the same as bread from spring wheat?

A. What do you mean by winter wheat?

Q. Don't you know what winter wheat means?

A. We have two kinds, soft and hard.

Q. Soft.

A. Soft winter wheat, we don't use for bread purposes.

Q. Hard.

A. Hard, is such as Kansas Turkey hard wheat, and the Nebraska.

Q. Is the smell from that bread, the same as it is from the hard spring wheats? A. Why, certainly.

Q. Is there any difference in the smell of bread from good flour, and from bad flour?

A. Well, if you take low grade flour, you can not only smell it, but you can tell it.

1631 Q. Tell it by the smell?

A. Yes, or tell it by the coloring.

Q. But if it is bleached, can you tell by the coloring?

A. Why, certainly.

Q. Tell a low grade?

A. Low grade bleached, will give itself away, when they are baked by showing its true nature.

Q. Before you bake it, how?

A. What do you mean by before.

Q. How can you tell it, before baking.

A. If you handle much flour, you can tell, because it is not the same as a good flour.

Q. Doesn't the bleaching improve the quality of flour?

A. No, sir, not that way.

Q. Do you mean to say that bleaching will not improve gluten, wherever it finds it? A. No, sir, I do not.

Q. It improves the gluten of flour, doesn't it—works the chemical change? A. Why should it improve it?

Q. It works the chemical change, just like nature, doesn't it?

A. It only obviates that mysterious improvement of nature in the nature of the wheat, from new flour, is my opinion.

Q. Yes, but that is the chemical change you told me about?

A. Yes, but what bearing has that, on the gluten?

Q. Doesn't that change the quality of the gluten?

A. I don't know. When flour is in the sweat, it is not fit to use.

Q. But doesn't this mysterious change of nature improve the gluten?

A. You will have to ask a chemist about that.

Q. But I mean, as a practical baker.

A. I don't know what the cause of the change is. It is a change that nature produces.

Q. Well, I know, but does it improve the gluten?

A. It improves the strength of the flour.

Q. Yes.

A. That is, in other words, when the flour is in the sweat, it is no good, at all.

Q. Now, does bleaching improve flour that has not sweat? Does bleaching improve the quality of flour that has not sweat?

A. If it has passed sweating, it has, of necessity, got aged.

Q. But, if it has not begun to sweat, does it improve that?

1632 A. I am of the opinion that, if the flour of a wheat has not sweat, and you bleach it, you obviate the danger of sweating.

Q. You obviate the danger of sweating? A. Yes, sir.

Q. What is the danger of sweating?

Mr. Scarritt: Get the same results.

Mr. Butler: Now, wait a moment Judge. I will put you on, next.

A. The danger of sweating is this: when it is in the sweat it is absolutely unfit to use. We could not make a loaf of bread out of it, if we wanted to.

By Mr. Butler:

Q. Now, let us go slow. So, your experience is, with flour made from old wheat, that it is absolutely useless, at any time after it is milled, if it is not bleached? Is that your experience? A. Put that question again.

Q. Flour made from old wheat. A. Yes.

Q. Does it sweat?

A. From old wheat? You mean, for instance wheat from last year, and ground today?

Q. Yes.

A. No. I do not think there is any possibility of it sweating.

Q. So that this flour that was seized, if it was made from old wheat, would never sweat, would it?

A. Not if it is made of old wheat, that has been duly seasoned.

Q. But now, you say that flour made from new wheat, will sweat, and sometimes spoil, won't it?

A. It will, after it goes through the sweat, yes, sir.

Q. But it sometimes spoils in the sweat, doesn't it?

A. We have never had any that was spoiled.

Q. Doesn't it get a little musty?

A. No, sir, we have never had it to spoil.

A. Now, do you think bleached flour improves with age?

A. You mean in color?

Q. Yes, and in quality.

1633 A. No, I do not think it does.

Q. You do not think it does? A. No.

Q. So, you think it preserves it, then, just like it is?

A. I think after it is bleached artificially, it is just the same as bleached, naturally.

Q. Does it go back, in quality?

A. No, sir, no such a thing.

Q. It does not improve, and it does not retrograde?

A. No, sir.

Q. So, your experience is, that the bleaching fixes it so it does not change, one way or the other?

A. I am not speaking of experience. I am speaking of opinion.

Q. That is your experience and opinion generally, is, that the bleaching preserves it from change, either to improve, or to grow worse. Is that it?

A. I have used bleached flour ever since its incipency, before the government ever questioned it, and the only claim I make, in behalf of bleaching was, that it eliminates the danger of—or, practically,—yes, eliminates the danger of having sweaty flour which is unfit to use.

Q. Then, you hold that the bleaching preserves it, and prevents change for the good, or change for the worse?

A. No. I am of the opinion that the bleaching does exactly what nature eventually does.

Q. Well, flour that is not bleached, improves, doesn't it?

A. With age?

Q. Yes. A. Certainly.

Q. Does flour that is bleached improve with age?

A. It practically remains the same as when bleached.

Q. Does it get worse? A. I don't know.

Q. Then, if it does not get worse, and if it does not get better, it is preserved, isn't it?

A. I don't know what you mean by that term "preserved." If that flour—

Q. (interrupting) Now, don't you know—

Mr. Scarritt: (interrupting) Wait a moment. Let him answer.

1634 Mr. Butler: I am going to find out if he doesn't know what I mean.

Q. Don't you know what a preserved egg is? A. Yes.

Q. It is an egg that doesn't change, isn't it?

A. But you are putting a chemical in that. That preservative is a chemical.

Q. That preservative is a chemical? A. Yes, sir.

Q. You don't know much about chemistry, do you?

A. No, I don't pretend to know anything about it, any more than the ordinary man.

Q. So that, you think the difference between the preserved egg, and the bleached flour, is, that the egg has a chemical used, and the flour hasn't it? Is that it?

A. Yes, I think the egg has the chemical in it.

Q. Now, you understand that this flour is bleached by pure air, don't you? A. How?

Q. You understand that this flour—

A. (interrupting) No, it is bleached by gas.

Q. Isn't that a chemical?

A. Gas evaporates again, though.

Q. Oh, you think it isn't—

A. (interrupting) It does not retain it, unless it is enclosed in some vessel.

Q. So, then, your experience and understanding is, that this gas, put into the flour, evaporates itself out of the flour. Is that it?

Mr. Elliott: Well, I think I will object to this. This gentleman is not a chemist and he doesn't know anything about that.

A. You are asking me something, there, that is more than you ought to ask.

By Mr. Butler:

Q. Maybe it is, but I would like to know whether you have noticed whether the gas put into the flour evaporates out, as you have said.

A. Well, we have never detected the odor in the bleached flour.

Q. Then, you think the gas must come out of it?

A. If it has a peculiar odor, and it is retained, you surely would smell it.

Q. Now, are you sure about that?

A. Yes, sir, I am sure about that.

1635 Q. So, therefore, you know that the gas comes out, don't you?

A. I don't say I know it. I presume it does, because I don't detect it. But, if there is any smell in it at the mill, by the time we get it, if there is any gas odor, it is gone.

Q. We think some of it comes out, too. Did you ever make a loaf of bread from bleached flour, and a loaf from unbleached, and taste them at the same time?

A. That I cannot recollect. That I don't know.

Q. Can you tell the flavor of a particular bread, if you taste one sample today, and a sample of another tomorrow? Would you notice the difference, or would you have to taste them about the same time?

A. We examine all the bread we bake by the flavor, every morning.

Q. Now, from Mr. Larabee's mill, how much did you buy from Larabee?

A. Thousands of barrels. I could not tell you how many.

Q. Does he label his sacks "Bleached"?

A. Of late years, Mr. Larabee has been too high priced.

Q. What do you mean, "of late years"?

A. The last year or two, Mr. Larabee got better prices, elsewhere, and we could not compete in price.

Q. Does he label his bags "Bleached"?

A. Never did. Never was asked to do it.

Q. What brand of Larabee's did you buy?

A. I cannot remember the brand. It was their best and second best grade.

Q. But the best and second best grade of Mr. Larabee's flour from his mill at Hutchinson, Kansas, has become so high, in price, that you have to find a cheaper flour?

A. Oh, no. No, Mr. Larabee has a demand for that business, and it is due to his representative. We never dealt direct with Mr. Larabee.

Q. It is true you quit buying from Larabee, because his prices for his best and second best grade were too high?

A. We could not meet that price, against his competitors.

Q. That is what I say. His prices were too high?

1636 A. The difference was not worth while. It all depended. If it is just as good flour, and there is a difference of five cents, we consider quality, and give the other man the order.

Q. That is what I say, Mr. Boettler. Mr. Larabee's prices for his best and second best were too high, so you bought flour that you could get cheaper?

A. Well, now, what are you trying to get at? What you are thinking, is, that it was because it was bleached. If a man has flour of like quality, and the other man has the same thing, and one asks a little more money, he is not going to sell it.

Q. You could buy better flour than Larabee's for less money?

A. No. I would not say better, but of like quality.

Q. Then, you could buy the same quality of flour as Larabee's for less. Is that it?

A. That is a question that all depends upon how and when we might meet in the market. We may be on the market, about five cents higher and the other man selling it for a few cents lower, we would get it from him.

Q. Why did you quit Larabee?

A. Because his representative offered us other flour.

Q. Offered you other flour? What other flour?

A. From other mills.

Q. From other mills? A. Yes.

Q. For less money than he would offer Larabee's?

A. At times, when he would give us quotations.

Q. Now, what mills were they?

A. Oh, I could not recall all of them. We buy from different ones. We do not discriminate among mills, so long as we got the quality.

Q. So, the reason you quit Larabee, is not because you could get better flour for less money? A. No, sir.

Q. Or because you could get just as good flour?

A. No, sir. It is conditions.

Q. Did you quit buying from Larabee, to make money, or to lose it?

Mr. Scarritt: We object to that.

A. That is his suggesting that we buy. To make money.

1637 Mr. Scarritt: That is what we are all here for—to make money.

Direct Examination

By Mr. Elliott:

Q. How many loaves of bread does your company put out in a month, do you know?

A. As far as I can remember, about fifty million.

Q. About fifty million?

A. In the neighborhood of forty-six to fifty million. That varies, of course.

By Mr. Scarritt:

Q. A month? A. A month, yes, sir.

By Mr. Elliott:

Q. You yourself, have a bakery, too, haven't you, Mr. Boettler? A. Yes, sir. I have charge of one.

Q. What is the capacity of your bakery?

A. Its capacity is about one hundred seventy-five barrels of flour a day.

Q. How many loaves a day would that be?

A. Now, you are asking me figures—my memory don't serve me so well on figures. You will have to excuse me.

Recross Examination

By Mr. Butler:

Q. How many gallons of liquid eggs do you use, daily?

A. We don't use any, any more.

Q. When you used them?

Mr. Scarritt: We object to that as immaterial.

A. You would have to go and get statistics, when we use seven plants. You are asking me more than I can answer you.

Q. How many did you contract for?

Mr. Scarritt: We object to that.

Mr. Butler: I want to get the volume of his business.

Mr. Scarritt: I don't see that that has anything to do with the case. He doesn't use them now, he says, at all. Discarded them, some time ago.

1638 Mr. Butler: He does not use Larabee's flour, now, either.

Mr. Scarritt: Yes, he does.

The Witness: We will buy it tomorrow, if he gives us the right price.

Mr. Scarritt: And that is not the best evidence. If there is a written contract, as Mr. Butler spoke about, that is the best evidence.

Mr. Butler: Not for cross-examination.

The Court: Oh, call another witness.

Witness excused.

F. S. Hohengarten, called as a witness on behalf of the claimants, being first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Elliott:

Q. What is your name? A. F. S. Hohengarten.

Q. Where do you live, Mr. Hohengarten? A. St. Louis.

Q. What is your business?

A. Baker; Manager of a branch bakery.

Q. How long have you been engaged in that business?

A. Twenty-two years and a half, for myself.

Q. What is the capacity of your bakery? First, in the amount of flour you use, and then if you can give it, the approximate number of loaves of bread per day, or week, or month? A. Of our branch, or the whole company?

Q. No, your particular bakery.

A. We use probably from 40 to 50 barrels per day.

1639 Q. And how many loaves per month? Would you have any idea?

A. No, I could not tell that. It is not all made into bread; it is made into rolls or different varieties.

Q. Mr. Hohengarten, have you, in your bakery, dealt with bleached and unbleached flours? A. I have.

Q. I will ask you if you have even noticed any difference in the odor of bleached and unbleached flours?

A. I have not.

Q. Have you also made bread from bleached and unbleached flours? A. We have.

Q. I will ask you if you have ever noticed any difference in the taste or smell of bread made from unbleached flour, as compared with bread made from bleached flour?

A. None whatever.

Q. I will ask you, as compared with the unbleached flour, if you have ever noticed that the baking quality and strength, and so forth, of the bleached flour was inferior to that of unbleached flour? A. It was not.

Q. What is your opinion as to how bleached flour compares with naturally aged flour, in respect to its working qualities and strength, and baking qualities, and so on?

A. At early states of the new crop, the bakers prefer the flour bleached, making it the same as the aged flour. Formerly, we had to wait a certain period, before we could get to the new flour, using it, until it was through a period of sweat, as we called it.

Q. Now, have you ever noticed any difference in loaf volume, between bleached and unbleached flours? A. No, sir.

Cross-Examination

By Mr. Butler:

Q. You have told Mr. Elliott, in substance, as I understand you, that there is no difference between bleached and unbleached flour, in loaf volume, color, odor or taste.

1640 Mr. Scarritt: He has not said there was no difference in color.

A. Color? I believe it was excluded.

By Mr. Butler:

Q. No difference, then in the loaf volume, odor or taste. I will ask you, now, about the color.

A. In the baked bread? The baked loaf, or the flour?

Q. The flour.

A. Well, the bleached flour, as a rule, is a white flour—pale color.

Q. Whiter than the unbleached?

A. Yes, sir, at times.

Q. How about the loaf? Any difference in color of a loaf made from bleached and unbleached? A. Not much.

Q. They bake about the same, anyway, do they? Come out about the same, after you get through baking?

A. After it gets through baking, the yellow flour will bake out creamy, or white.

Q. The yellow flour will bake out white? A. Yes.

Q. So, then, it is not for the color of the flour that you want it bleached, at all, because the yellow flour bakes out white, as I understand it?

A. Probably not as white as bleached flour, but to some extent. White enough to be marketable.

Q. And it is only for the advantage to the new crop, then, as I understand it.

A. As we bakers understand it, yes.

Q. So, from baking standpoint, there is no need of bleaching, if the flour be made from the old crop, is there?

A. No.

Q. Now, Mr. Hohengarten, you have spoken of the taste or flavor of breads. I suppose the way bread is made affects the flavor, does it?

A. Considerable.

Q. You use other substances in bread—yeast, sugar, sometimes, and salt, I suppose? A. Malt.

1641 Q. Malt? What else? A. Lard.

Q. Malt and lard?

A. And sugar and yeast and flour and water.

Q. Sugar, and yeast, and flour, and salt?

Mr. Scarritt: And water.

By Mr. Butler:

Q. And malt, too? A. Yes, sir.

The Court: Alum.

A. No, sir.

Q. Now, malt, lard, sugar, salt, water, yeast, flour, and salt? A. That is all.

The Court: No baking powder?

A. No, sir.

By Mr. Butler:

Q. Now, this is bread we are speaking of? A. Yes.

Q. Now, we will mark that "bread" at the top of my list, here. Now, biscuits. Do you make biscuits?

A. No, sir.

Q. You make cake? A. We do.

Q. Now, you have told Mr. Elliott you never noticed that bleached flour was inferior in any way. Now, that would entitle us to inquire about cake, perhaps. Flour is used to make cake, I suppose? A. It is.

Q. Now, what do you use to make cake? A. Soft flour.

The Court: What?

A. Soft flour.

By Mr. Butler:

Q. Now, what else?

A. Well, other ingredients, owing to the kind of cake we make.

Q. Tell me the kind of ingredients that are used in the cake that is most sold. I don't want to go into the different kinds of cake.

A. Well, the main substance of a cake is sugar—

The Court: What kind of sugar—white or brown?

1642 A. That is according to the cake we make. Some we use brown sugar and others we use white sugar, according to the class of cake we make.

By Mr. Butler:

Q. Sugar? A. Butter or lard.

Q. Or both? A. Or, both, yes.

Q. Butter, or lard, or both?

A. Eggs, and milk, and flour.

Q. Eggs, milk and flour.

The Court: What kind of milk? Fresh or buttermilk?

A. Fresh milk.

By Mr. Butler:

Q. Now, how do you tell your bleached from your unbleached flour?

A. Well, we don't look for it. We used a bleached flour the same as we would an unbleached flour.

Q. I know, but you have told Mr. Elliott you have not been able to observe any difference between the bleached and unbleached. Now, you could not answer that question without having known that some flour was not bleached, and some flour was bleached, and I want to find out how you can tell.

A. Well, as I said, we used a bleached flour the same as we would an unbleached flour.

Q. You do not get all bleached, do you?

A. Mostly, I think.

Q. You think mostly? A. Well—

Q. (interrupting) Well, don't you ever get any flour that is not bleached, down there? A. Why sure we do.

Q. How can you tell which is which?

A. We don't go into that detail, because it is not necessary for a baker to know. Whether it is bleached, or unbleached, the action on them is the same, in baking.

The Court: Is what?

A. The action on them, the bleached and the unbleached, is the same.

1643 Q. Does all the flour that you get down there act the same? A. No, indeed not.

Q. A short patent is the best stuff, isn't it—the best flour?

A. Not always.

Q. What kind of flour is the best?

A. Well, that all depends on what a baker considers the best.

Q. Well, I am asking you, because you are the baker.

A. A short patent flour.

Q. So that you have flours that act differently? I am not going into details, or bother you long about this matter, but here is what I am trying to get at: You get flour from a good many different mills? A. We do.

Q. And the flours do not act exactly alike, do they?

A. No.

Q. Maybe from the same mill it would act differently, and maybe two different mills would act alike, and so on, and maybe they would act differently, and so on. Isn't that true?

A. Yes.

Q. If you have a good flour, and handle it right, you can make good bread and cake out of it, if it is any good?

A. Sure we can.

Q. That is what you are there for, isn't it?

A. Yes, sir.

Q. Now, what I am trying to get at is this: How do you know that you have bleached flour, at all? How can you tell the flour? Can you tell it by looking at it?

A. No. I am not an expert on flour.

Q. Can you tell it by tasting it? A. No.

Q. Can you tell it by smelling it?

A. You want to know how I know when we have it?

Q. Yes.

A. I am down at headquarters, usually, and hear any conversation about flour, and when flour is brought for our branches, I know whether it is bleached or unbleached.

Q. You know by what somebody else tells you? A. Yes.

1644 Q. Or what you hear somebody say? But what I am trying to get at is this: The flour is not branded "bleached" is it? A. Not as I know of.

Q. Some of it is branded "unbleached", perhaps?

A. No, sir.

Q. None that you buy? A. I haven't even noticed that.

Q. Now, from the handling of the flour, can you tell whether it is from the new wheat or the old wheat? A. Yes.

Q. Well, if it is bleached, I mean—if it is bleached, from the wheat, can you tell then that it is different from the old wheat? A. No. Can't tell it.

Q. So that, by handling flour, or tasting it, or smelling it, or looking at it, you cannot tell whether it is bleached or not, can you? A. Cannot, no, sir.

Q. So, you have said to Mr. Elliott that you have never noticed any difference? A. I have not.

Q. At all? But you think it does help the new crop?

A. The new crop.

Q. You are not a practical miller? A. Not at all.

Q. You don't know how it goes, when they work a part of the old crop in with the new crop, at the mill?

A. No, sir, I don't understand that.

Q. And you have never seen any of these bleachers working? A. I have not.

Q. You are not familiar with that? A. No, sir.

Q. All you go by, is that you have never noticed any difference? You cannot tell one flour from the other, by smelling it, tasting it, or anything else, can you?

A. We can tell it in the baking test. Not as to the bleached and unbleached. I mean as to quality.

Q. You do not believe that bleaching will change a poor flour and make a good flour out of it?

A. No, the baker would soon discover it.

Q. Yes? The Lord has not done that yet? Now, about this taste. Is the flavor of bread an important thing?

1645 A. Yes, sir.

Q. And of cake, an important thing?

A. Indeed it is.

Q. Now, have you had any means of comparing the flavor of bread made from bleached flour, with that of unbleached flour, so you had one loaf that you knew was bleached, and one that you knew was the same kind of flour that was not bleached?

A. We have never made any such comparisons.

Q. You are just testifying from your own general impression? A. Yes.

Q. Now, don't you think the malt, and lard, and sugar, and salt, and yeast might affect the taste?

A. Decidedly so.

Q. Now, flour itself, if it is clean flour, does not have much taste, does it,—the pure flour?

A. It has a wheat taste—a flour taste.

Q. But it is not a strong taste? A. No.

Q. Distinctly a mild taste? But malt has a taste, has it?

A. Well, yes, it has.

Q. Lard has a taste? A. Yes.

Q. Sugar has a taste? A. Yes.

Q. Salt has a taste? A. Yes.

Q. Yeast has a taste? A. Yes.

Q. And those are the controlling things, then, in bread, as to the taste, are they not?

A. That is what they are.

Q. That is what they are? A. Properly proportioned.

Q. If you would get in too much lard, it would spoil the taste? A. Yes.

Q. Too much sugar would spoil it? A. Yes.

Q. Too much salt would spoil it? A. Yes.

Q. Too much malt would spoil it? A. Yes.

Q. Now, that is so as to the bread. Now, as to the cake. Did you ever make a cake out of bleached flour, and then another cake out of unbleached flour?

1646 A. We haven't made the comparison.

Q. The sugar, and the butter, and the lard, and the eggs, affect the taste of the cake, don't they?

A. Very much so. More so than bread.

Q. Now, with respect to cake, eggs are used? Isn't that true? A. Yes, sir.

Q. And if you put in too many eggs, that would affect the taste? A. Yes, sir.

Q. And make a cake out of bran taste the same as cake made out of flour, very near it? It would destroy the flour flavor, is what I am trying to get at, of two different kinds of flour?

A. If you will allow me,—flour is a minor article in a cake. Cake is composed more of other substances.

Q. Now, if there was bad eggs put into cake, it will spoil the taste? A. Yes, it will.

Q. Do you use liquid eggs, too? A. We have used them.

Q. To what extent? Are you associated with the last witness? A. Yes, sir.

Q. From the same concern, are you?

A. Same concern, but different branch.

Q. Now, you are the same gentleman he paused in his testimony, to inquire about the weight of these eggs?

A. Yes, sir.

Q. How many of those eggs are used in your establishment?

A. None used at present.

Q. I mean that you used before you stopped.

A. Hard to tell. We used probably four or five cans per week.

Q. In the bakery you are with? A. Yes.

Q. How many bakeries are there, altogether? A. Seven.

Q. Is yours the largest?

A. No, sir; ours is one of the smallest.

1647 Q. What is the capacity of the seven?

A. That I could not tell you, off hand.

Q. Would the seven be ten times as much as yours? You have seven, altogether, and you say that yours is the smallest?

A. Yes.

Q. Now, seven altogether, would they be ten times as large as the one you are in?

A. You mean in cake production?

Q. Yes. A. No, they would not.

Q. Seven times as large?

A. We probably make more cakes, in our small plant, than the largest plant.

Q. What proportion of the total production of cakes is made at your place—the branch that makes the cakes?

A. I could not say.

Q. About one-tenth, or one-fifth, or one-quarter?

A. We will say about one-tenth of it.

Q. And at your place, there were four cases of 44 pounds each? A. 44 pounds per can.

Q. 156 pounds of the liquid eggs, per week?

A. Yes, sir.

Q. Now, don't you think that 156 pounds of liquid eggs, preserved—by the way, do you know they were preserved?

A. No.

The Court: What are those eggs made of?

A. They are fresh shell eggs, broke in, and kept in preservative, and put in cold storage.

By Mr. Butler:

Q. You did not see them broke in?

A. No. We presume they are. We are told so by reputable houses, that are making them.

Q. What?

A. Respectable houses—reputable houses were making them.

By Mr. Butler:

Q. Might have been hatchings, for all you know?

A. Could not put them in.

1648 Q. What preservative did they use?

A. I do not know; I am not a chemist.

Q. Well, I know, but were you using 156 pounds of liquid eggs a day, without knowing what was in them?

A. I suppose so.

Q. Well, now, what I am trying to get at is this: Don't you think that 156 pounds of liquid eggs would be more influential on the taste of your cake, than the flour would be?

A. I don't think so.

Q. You think not?

A. You mean on the taste of the cake?

Q. Yes; don't the eggs affect the taste very much?

A. Oh, they do.

Q. Don't you think, between these liquid eggs, and the sugar, and the butter, and the lard, and the milk, that the taste of flour would be drowned out, so you could not tell whether it was a good flour, or just a poor flour?

Mr. Scarritt: I object to this line of examination going any further, if your Honor please, as being absolutely immaterial to the issues in this case.

Mr. Butler: I was about through, if it please the Court.

The Court: Yes, he has a right to inquire.

Mr. Scarritt: We save an exception.

Mr. Butler: I think it is material, because he said there was no difference between the bleached and unbleached. Now, if the eggs drowned out the taste—

Mr. Scarritt: (Interrupting): Don't argue, because you have got your ruling.

Mr. Butler: I wanted to be sure you understood it.

Mr. Scarritt: It don't make any difference whether I understand it or not.

By Mr. Butler:

Q. Don't you think that is true, that the lard and the eggs and the milk, butter, and sugar, would probably drown out the taste of the flour in the cake? In other words, you could not taste the cake and tell what kind of flour it was made out of?

1649 A. No. You cannot tell what kind of flour you use in a cake. It is impossible.

Q. Now, with the bread. Don't you think the malt, lard, sugar, salt, and yeast, would have a strong influence on the taste? A. Indeed, yes, sir.

Q. And so that would make it very difficult, indeed, would it not, to identify any flour, bleached or unbleached, or whether it was a patent flour, or a clear, baker's grade of flour, by the taste, wouldn't it?

A. There is a peculiar difference between a clear and a patent flour. You could detect that in the bread baking.

Q. Well, I know that you could detect it in the loaf, itself. A. Yes.

Q. But I am speaking now, Mr. Hohengarten, of the taste. Supposing neither is bleached; suppose there is no bleaching at all, now, and you have a good, high grade patent, and you have a good, fair clear—not a rotten clear, or low grade, you know, but a fair clear. What I am trying to get at is this: Would there be any difference in the flavor of the bread made as you make it, there? A. I think it would.

Q. Now, in the taste, you think there would be a difference? A. Yes.

Q. Now, do you suppose you could tell the difference in the taste of the flour made from one kind of wheat, from flour made from any other kind, if it was not bleached? A. No.

Q. You do not think anybody could do that, if they used malt, sugar, salt, yeast and flour; is that right?

A. That is right.

Q. Do you make crackers? A. We do not.

Q. Do you make anything using baking powder?

A. We use cream of tarter baking powders.

Q. What things do you put that in? A. Cakes.

1650 Q. Well, you did not give me that. A. Rising stuff.

Q. Cream of tarter? A. Yes.

Q. Anything else? A. Soda.

Q. Anything else? A. That is all.

Q. Where do you get your cream of tarter?

A. From the supply house.

Q. And your soda? A. Same house.

Redirect Examination

By Mr. Scarritt:

Q. Do you use all those things in all kinds of cakes?

A. They differ very much, in the grade of cake made.

Q. You have given him about all that you put in all kinds of cakes? A. Yes, different proportions.

By Mr. Butler:

Q. You gave me, first, what you put in your principal cakes—sugar, butter, milk, and so forth?

A. All cakes are composed of that.

Q. In every cake?

A. In every cake, but used in different proportions.

Dedirect Examination.

By Mr. Elliott:

Q. I just want to ask you, Mr. Hohengarten—I am not going to run all through this cake business and the ingredients, but just assume you had an unsound flour, and you should put all of this stuff that we have had here, the ingredients, in it, would that make that a cake or a loaf of bread from such unsound flour—would that make it taste like a loaf of bread made from the pure, sweet flour? A. It would not.

By Mr. Butler:

Q. You cannot bleach it so it will, either, can you?

A. No, sir.

1651 Witness Excused.

Mr. Elliott: If your Honor please, Mr. Boettler wants to correct his testimony; he made a mis-statement.

Adolf Boettler, resuming the stand stated as follows:

The Witness: I made a mistake in reference to my output. I meant annually, instead of monthly.

By Mr. Butler:

Q. Have you ever been told what preservatives are used in this liquid eggs?

A. Yes, I have, but I don't remember what it was. The Government Inspector told us, and that is what caused us to abandon it, but I do not remember what it was.

Q. That is, the Pure Food Inspector told you?

A. Yes, sir.

The Court: Was it formaldehyde?

A. No, I think it was something else.

By Mr. Butler:

Q. Was it borate or boracic acid?

A. Yes, boracic acid, and he told us it was used in such quantity—but nevertheless, they did not stop the man that we had bought it from.

Witness Excused.

C. H. Colladay, called as a witness on behalf of claimants, being first duly sworn, testified as follows:

Direct Examination

1652 By Mr. Elliott:

Q. Mr. Colladay, state your full name.

A. C. H. Colladay.

Q. What is your residence? A. Abilene, Kansas.

Q. What is your occupation? A. Mill Manager.

Q. What mill? A. Security Flour Mills Company.

Q. Manager of the Security Flour Mills Company, of Abilene, Kansas. A. Yes, sir.

Q. Do you use an Alsop bleacher in that mill?

A. Yes, sir.

Q. How long have you been using it?

A. Since the construction of the mill, two years ago.

Q. Since two years, when the mill was constructed?

A. It will be two years in July.

Q. Have you made any alterations or change in the pipings of that, since you installed it? A. No, sir.

Q. What grades of flour do you make?

A. We make a 65 per cent patent, and a 95 per cent patent, and a clear.

Q. How do you brand these grades?

A. We sell them under a name. We do not brand them as to percentage, at all.

Mr. Scarritt: You do not brand them "patent"?

A. We do not brand them "patent".

The Court: Sir?

A. We do not brand them anything, just sell them under some name.

The Court: Under a fanciful name?

A. Yes.

By Mr. Scarritt:

Q. Do you put "patent" on?

A. No, sir, we don't put "patent" on any.

The Court: Just some fanciful name you have selected?

A. Under our own trade mark.

By Mr. Elliott:

Q. Now, what grades of flour do you bleach?

A. We bleach our patent, and we bleach our 95 per cent.

The Court: Bleach your short patent?

1653 Mr. Butler: 65 per cent?

A. We bleach our 65 per cent, and our 95 percent, and we bleach the clear, if our customers want it.

By Mr. Elliott:

Q. Otherwise, you do not bleach it?

A. Otherwise we don't bleach it.

Mr. Butler: Mr. Elliott, he said if their customers wanted it bleached. Would that apply to the clear, or to all?

Mr. Elliott: Just the clear. He bleaches that, if the customers want him to.

By Mr. Elliott:

Q. I will ask you, suppose you take a sack of bleached flour, right off the packer, is there any odor, in such flour, that is foreign to it, that you are able to detect? A. No, sir.

Q. It is right off the packer, and you say there is no odor, foreign to the flour, that you can detect? A. No, sir.

Q. Explain what a packer is.

A. A packer is a machine used to draw the flour down out of the bins, and force it into the sack, under pressure, so you could get a sufficient quantity of flour in the standard sack.

Q. Right out of the bin?

A. Right out of the bin, yes, sir.

The Court: 50 pounds, or whatever the sack calls for?

A. Yes, sir.

By Mr. Elliott:

Q. I will ask you what effect, if any, as to quality and strength have you noted, as being produced in flour by bleaching it?

A. The bleaching ages flour, and does not affect the quality or strength, at all.

Q. Did you ever have any flour sold in the last two years, rejected?

Mr. Butler: Objected to as irrelevant.

The Court: That might or might not be material.

1654 By Mr. Elliott:

Q. And if so, what kind of flour?

Mr. Butler: I will object to that. His flour is not at issue here.

The Court: Oh, he may answer. We won't go into that very far, Mr. Elliott.

A. We have had one case of that kind, and it was unbleached flour.

By Mr. Elliott:

Q. Do you sell to the family trade? A. We do.

Q. Do you use bleached flour in your own family?

A. We do.

Q. Somebody stated here, that the yellow color of flour was not an impurity. I will ask you if you regard the yellow color of flour as a defect? A. I do.

Cross-Examination

By Mr. Butler:

Q. Is it an impurity? A. I don't consider it so.

Q. Why, if it is a defect?

A. I regard it as a defect, because it is a color that the customer does not want.

Mr. Butler: I move to strike out "because" part of it.

Mr. Elliott: I object to having that part stricken out.

Mr. Butler: Of course, I knew you would, but I made the motion, just the same.

The Court: The last part of it may be stricken out.

By Mr. Butler:

Q. Now, do you think the Lord made a mistake, when he put yellow coloring matter into wheat?

Mr. Scarritt: I object to that. I do not think we can get the Lord here to contradict anything that was said.

A Juror: Can't cross-examine him.

Q. Do you think it has an effect? A. I do.

Q. Do you think it injures the quality of the flour?

A. Injures the color.

1655 Q. Do you think it injures the quality of the flour?

A. It does, in color.

Q. Do you think it injures the quality of the flour?

A. I cannot change my answer to you.

Q. Is there anything about my question you do not understand, Mr. Colladay? A. Yes. I do not understand it.

Q. What is it? My question is this: Do you think the natural color of flour injures its quality? What is it about that question that is hard for you to understand?

A. Well, I don't see, aside from the color, what it has to do with the quality.

Q. Well, is that the reason you do not understand the question? A. Yes, sir.

Q. Well, now, does it injure the quality of the flour in any respect? Suppose I like the yellowberry?

A. I will give you yellow flour, if you want it.

Q. Yes? How much will you give? I will give you my address, if you will send it on.

A. I might send you up a sack.

Q. Yes? I thought you would cut it down. Can't you distinguish between quality of flour, and the color of it? When I ask you if the yellow color injures quality, you keep insisting that you do not understand my question. Now, can't you as a miller, distinguish between the quality of flour and its color, or, are you trying to avoid answering a very simple question?

Mr. Helm: Which one of those questions do you want answered, Mr. Butler?

Mr. Butler: I will ask the Court to direct counsel to keep still.

The Court: Go on, Mr. Witness, and answer his question.

A. I consider that the quality and color are two parts—I mean two distinct parts.

1656 By Mr. Butler:

Q. The quality is one thing, and color is another?

A. Yes, sir.

Q. Now, then, I ask you if the natural color injures the quality—if the one thing injures the other. Now, that ought to be very plain. A. No, I don't think it is.

Q. You never heard anybody that did, did you? In your whole experience in the mill, did you ever hear anybody claim that color affected the quality of flour?

A. We have lots of them that insist that they want white flour.

Mr. Butler: I move to strike that out.

The Court: Yes. That is not an answer.

By Mr. Butler:

Q. The natural color injures quality? Did you ever hear that promoted by any living person?

Mr. Scarritt: We object to that because he has not said that it did. The gentleman is leading him away from the proposition.

Mr. Butler: Well, I will withdraw it.

Q. Do you smell the bleaching gas about your mill, when the Alsop bleacher is working?

A. We smell it at the flour bins.

Q. Do you smell it in the office? A. No, sir.

Q. Do you smell it at the gas factory—the gas machine—nitric acid machine? A. No, sir.

Q. Do you smell it anywhere, except in the flour bins?

A. No, sir.

Q. Then I take it that your system is tight throughout, from the flaming arc to the flour bin, so that gas cannot escape; is that true? A. I believe it is.

Q. Did you ever take some flour that was not touched or influenced by this bleaching gas, and put it in a bag, and compare its odor with a bag of freshly bleached flour? A. Yes, sir.

Q. When? A. Well, I could not give you the dates.

Q. About when?

A. Oh, I have done that several times, since I have been engaged in the business.

Q. When, first? What year? A. 1909.

Q. Why? A. Curiosity.

Q. To find out whether the smell was affected?

A. Yes, sir.

Q. How many horse power dynamo do you keep?

A. I could not tell you.

Q. Are you a practical miller? A. No, sir.

Q. Have you a practical miller? A. Yes, sir.

Q. Who would have the opportunity, in the course of his work, to know the details of manufacturing flour in that mill?

A. Yes, sir.

Q. Is he still with you? A. Yes, sir.

Q. Been with you all the time?

A. No, sir—yes, he has. I will take that back.

Q. Do you know he never caused the pipes to be cleaned out?

A. I don't believe they have been cleaned out in two years.

Q. Would you know if they had?

A. Yes, I think I would.

Q. Have you one of these slicker-downs in your pocket?

A. No, sir.

Q. Every miller carries one of them, doesn't he?

A. I am not a miller.

Q. Then, I guess there isn't much use examining you. Did you come up here to testify about your mill?

A. I am an office man.

Q. You are the office man, and you came here all the way from Abilene to Kansas City, to testify in this case?

A. Yes, sir.

Q. To tell about the Alsop process? And you don't know how many horse-power of current is used to make the gas, or bleach the flour? A. No, sir.

1658 Q. Do you know how many barrels of flour you make?

A. Yes, sir.

Q. How many? A. 600.

Q. Every day? A. Twenty four hours.

Q. That is your capacity, or your output?

A. That is our output.

Q. 600, every twenty-four hours? Do you know how many bleachers you have? A. One.

Q. Do you know how many sparkers, or electrifiers there are, to that bleacher?

A. Well, as to the details of the machine, I am not familiar with it.

Q. Do you know how many agitators there are?

A. Yes, sir.

Q. How many? A. Two.

Q. Two agitators? What percentage of clear do you bleach?

A. 35 per cent.

Q. Does it hurt it? A. I don't think so.

Q. Does it improve it? A. Improves the color.

Q. In any other respect? A. No; ages it.

Q. What is "aging it"? I have been trying to find out. You told Mr. Elliott that bleaching ages the flour, but does not affect it as to quality or strength. Did I understand you right? A. Yes, sir.

Q. All right. Now, what is aging, if it does not affect quality or strength?

A. After bleaching—

Q. (interrupting) No, I am not speaking of the bleaching, Mr. Colladay? I did not make myself clear, and it was my fault. What is natural aging.

A. Natural aging is simply the time which elapses between the grinding of the flour and the use of it.

Q. So, aging is time? A. Yes, sir.

Q. So, natural aging—we will call it three months' time?

A. Well, that might do.

Q. Is that it?

A. That might do, yes, sir.

Q. But the quality and strength is not affected by the time, is that it? A. Yes, sir.

1659 Q. Now, artificial aging, or bleaching, is aging?

A. Yes, sir.

Q. So, therefore, bleaching is three months' time?

A. Has that effect.

Q. What effect has three months' time? You said nothing but lapse of time?

A. Well, the flour this is three months old will give better results in baking than flour unbleached, right from the packer.

Q. Oh, then natural aging does effect quality and strength?

A. Not the strength.

Q. It affects quality, then? Does it?—or do you know? Does that come in the office department?

(No response.)

Mr. Lyons: I did not get your answer.

A. Will you kindly repeat your question?

By Mr. Butler:

Q. Do you know whether natural aging affects quality?

Mr. Helm: Of the flour?

A. Yes, I believe it does.

By Mr. Butler:

Q. Favorably or unfavorable? A. Favorably.

Q. How?

A. Well, it will produce—it will give better baking results.

Q. There seems to take place a chemical change, does there not, in good flour, by the lapse of time, improving for a period, if it is stored under proper conditions, and as time goes on, that flour will begin to retrograde, in the course of a long period of time, and finally become worthless; is that not true?

A. I never kept any flour on hand long enough to find out about that.

Q. You do not know, then? Does bleached flour improve with the lapse of time, after bleaching?

A. I could not say.

Q. Now, the truth, therefore, is that you do not feel that you are a flour or milling expert? Isn't that true?

1660 A. I feel that I am thru the experience in the office, the results obtained from our customers.

Q. But I do not mean what your customers think, but what you know yourself. Do you think your observations of

the flour, and of the milling process, are such as to enable you to give us any information that will be of real value in this investigation?

A. Yes, sir, I do.

Q. Now, you don't know whether flour that is not bleached, spoils in the lapse of time, do you?

A. I only know it from what I have read about it.

Q. You understand that is true? A. Yes.

Q. But, your experience as a miller does not give you any help?

A. I said we do not carry flour that length of time.

Q. You do not know whether flour that has been bleached spoils with the lapse of time, or not, do you?

A. Not from personal experience.

Q. Well, you have never read about it, have you?

A. Yes, sir.

Q. What does the reading say?

A. That it does.

Q. Do you know whether it improves with the lapse of time? A. Up to a certain extent.

Q. After bleaching?

Mr. Scarritt: That is what you are asking him about.

Mr. Butler: Well, I wanted to be sure we understood each other, Judge Scarritt. I am seeking to be perfectly fair.

Q. After bleaching, for a certain time, it improves?

A. Yes, sir.

Q. Now, as to the rate of improvement, compared with the unbleached, afterward—to make myself clear.

A. Pardon me. I misunderstood you.

Q. Yes?

A. I understood you to ask me the question, if the unbleached flour improved with lapse of time.

Q. And you said it did? A. Yes.

Q. I asked you if the bleached flour improves with the lapse of time, and you said it did. Would you like to change that.

If you want to change it, change it.

1661 A. I want to change that.

Q. You would like to change that?

A. Bleaching accomplishes the same effect that the lapse of time does.

Q. Who told you that?

A. Well, I know that from personal experience.

Q. Well, now, what experience did you have that teaches you that? A. We have had the flour on hand.

Q. When was this—the two kinds? A. Yes, sir.

Q. Side by side? A. Yes, sir.

Q. What is that?

A. We had the unbleached flour in the warehouse for a period of three months, and sent that flour out, and did not give any better satisfaction than bleached flour will, right from the packer.

Q. Now, you are talking about the satisfaction of somebody. Did you, yourself, ever make any experiments? By the way, are you interested in this mill that is defending this case? A. No, sir.

Q. Are you interested in the defense of this case?

A. To what extent?

Q. I don't know. I am asking you.

A. No, I am not interested in it.

Q. Are you aiding, the defense of this case, financially, or expect to, you or your company? Can't you remember?

Mr. Scarritt: If you know, just tell him.

Mr. Helm: Certainly.

A. Yes, sir, I subscribed to the defense of this case.

By Mr. Butler:

Q. Why didn't you tell us that before Judge Scarritt asked you to?

Mr. Scarritt: You can see the reason why.

Mr. Helm: He did not just know what you wanted.

By Mr. Butler:

Q. Did you forget it, until reminded by Judge Scarritt to tell us? A. (No response)

1662 Q. Did you ever, in the last two years, since you have been bleaching, brand your flour "Patent" flour?

A. Yes, sir.

Q. When? A. In 1909.

Q. "Silver Leaf Patent"? A. Yes, sir.

Q. Since then, you have taken it off? A. Yes, sir.

Q. To avoid having it charged against you that it was misbranded?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial in this case, and having nothing to do with the issues of this case.

The Court: He may answer.

Mr. Scarritt: We except.

By Mr. Butler:

Q. That was a ninety-eight per cent patent, wasn't it?

A. Ninety-five to ninety-eight.

Q. Ninety-five to ninety-eight per cent patent? Do you make a straight?

A. We do not make it in any longer percentage than—

Q. (interrupting) The ninety-eight?

A. Ninety-five or ninety-eight, out of the present run.

Q. So, in 1909, you were accustomed to make a flour, the ninety-eight per cent—ninety five to ninety-eight per cent of all the flour content of the wheat. Now, when you make it ninety-eight per cent, what did you do with the other two per cent? Was that a clear or a low grade?

A. It was a low grade, put in the feed.

Q. Now, a straight flour is all of the flour, except the low grade, is it not? A. Yes, sir.

Q. So, then, this ninety-eight per cent, or ninety-five per cent, as the case may be, was all of the flour except the low grade, was it not? A. Yes, sir.

Q. It was, therefore, a straight flour, within your definition of that term, just now, was it?

A. No, sir. The low grade is considered a flour.

Q. Well, you told me that a straight flour was all of the flour, except the low grade. Do you want to change that? A. Yes, sir.

Q. How do you want to change that?

A. The straight flour would include the low grade.

Q. So that, if you put in this two to five per cent that you put in the feed, then it would be a straight flour?

A. It would be a full straight, yes, sir.

Q. Now, did you bleach this ninety-eight per cent flour?

A. It would depend on what our customers wanted.

Q. Well, I mean generally. A. Generally, we did.

Q. Generally you did, and that was your "Silver Leaf Patent"? A. Yes, sir.

Q. And so branded? Was it branded "Bleached".

A. In Kansas.

Q. In interstate commerce? A. No, sir.

Q. The law of Kansas, or the order of its health department, requires flour sold in Kansas that is bleached, to be branded "Bleached", does it not? A. Yes, sir.

Q. So, the health department of Kansas requires bleached flour to be labeled as bleached? A. Yes, sir.

Q. But, as soon as you sent it outside of Kansas, you left the label off? A. Yes, sir.

Q. Now, then, bleaching this flour, what was its color—this ninety-eight per cent flour, as compared with sixty-five per cent flour made out of the same wheat—same kind of wheat? Lighter or darker, or the same?

A. It would be slightly darker.

Q. Slightly darker? After you bleached the ninety-eight per cent patent, as you labeled it, how did the color then compare with the sixty five per cent that was not bleached?

A. It would not be the same.

Q. Would it be lighter or darker?

A. It would be lighter.

Q. It would be lighter? So that the bleaching process made the longer patent lighter colored than the natural unbleached, shorter patent? A. Yes, sir.

Q. When you bleached them both, which would be lighter? Did you ever notice that?

1664 A. The sixty-five per cent.

Q. So that the effect of this bleaching was to make the bleached, long patent, lighter than the unbleached short patent, wasn't it? A. Yes, sir.

Q. And it was to make the fresh flour, as light in color as the naturally aged flour, and therefore, look like it?

A. No, it won't look like it.

Q. It doesn't look like it? A. No.

Q. So, this bleaching doesn't make the flour look the same as the natural aging does? A. Not exactly.

Q. Not exactly? So, therefore, it is not exactly the same as natural aging, because, if it was the same, they would look the same, wouldn't they?

Mr. Elliott: Are you asking a question, or making a statement?

Mr. Butler: Please read the record.

(Record read as requested)

A. They won't look exactly the same.

By Mr. Butler:

Q. They don't look exactly the same? A. No, sir.

Q. Therefore, they are not the same, or they would look the same, wouldn't they—as an expert, now?

Mr. Elliott: He doesn't happen to be an expert.

The Court: Go on and answer.

A. I said no.

By Mr. Butler:

Q. So, the statement that you make, that bleaching was the same as natural aging, was inaccurate, wasn't it?

A. I stated it had the same effect as natural aging.

Q. Yes, the same general effect—made it lighter in color?

A. Yes.

Q. But not in degree?

Mr. Scarritt: Same in quality and strength.

1665 Mr. Butler: Wait a minute, Judge Scarritt. I will put you on, sure, if you try to help this witness.

The Court: Let us get along, Mr. Witness.

By Mr. Butler:

Q. The same in kind, but not in degree? That is what you mean, isn't it? A. Yes.

Q. You don't mean to say that any living human being can so adjust an Alsop bleacher on the varying kinds of flour that come down the spout, as to be the same as three weeks, or six weeks, or three months, or six months time, do you?

A. I think it will have the same effect in the baking process.

Q. Does it make any difference how hard they bleach it?

A. Well, we have never been able to bleach it hard enough to spoil it.

Q. Have you tried?

A. Yes, sir, all the machine will carry.

Q. Do you get the yellow color, xanthoproteic reaction, —the yellow poisonous action in the proteids?

A. I never noticed it.

Q. You never looked, did you? A. No, sir.

Q. Never took any pains to clean that out of your packing rooms, did you? A. I left that to the miller.

Q. Did you ever smell the gas in that room?

A. In the packing room?

Q. Yes. A. No, sir.

Q. Did you ever go in there when they were bleaching?

A. Yes, sir.

Q. Your packing room doesn't smell of bleaching gas?

A. Our packing room is below our bleacher.

Q. And your flour runs down? A. Yes, sir.

Mr. Scarritt: He is talking about another room.

1666 By Mr. Butler:

Q. Well, the bin where it goes out of the agitator, that is about six by six by ten in the Updyke Mill. I want to know whether you can smell the gas, while you are bleaching.

A. You can smell the gas, if you open up the door.

Q. Did you ever observe the yellow flour?

A. No, sir, I never did.

Q. Have you given any orders to have that cleaned out?

A. No, sir.

Q. Did you ever see any yellow flour around your mill, as the result of this bleaching, as yellow as sulphur? A. No, sir.

Q. And, no matter how hard you bleach, you cannot hurt it? And you say you have never been able to do it by bleaching?

A. No, sir.

Q. And you don't know how many horse-power you gave it? You could not hurt it? Couldn't turn it yellow, could you?

A. No, sir.

Q. Well, now, when you bleached it as hard as you could, to see whether you could hurt it or not, how much natural aging was that equivalent to? A. I could not tell you.

Q. Now, nobody else can either, can they?

A. I am sure I couldn't say.

Mr. Scarritt: I object to what anybody else can do.

Mr. Butler: I thought that is what you wanted him to tell. I thought that was what he came here for.

Redirect Examination

By Mr. Elliott:

Q. In respect to this smell. We have had so much about it, in the bin, I will ask you what is your judgment. Is that gas that comes down from the agitator with the flour, or is it gas that comes up from the flour in the bin?

A. In my opinion it is gas comes down out of the agitator with the flour.

1667 Q. Are those bins ordinarily closed?

A. Yes, tight.

Q. You were asked about branding your flour "Bleached", in the state of Kansas. I will ask you if you know of any federal rule which requires you to brand bleached flour as such. A. No, sir.

Q. Did you ever have any flour analyzed? A. Yes, sir.

Q. Where, and when, and with what result?

Mr. Butler: I will object to his result, as hearsay.

The Court: That may be hearsay.

A. We had it analyzed here at Kansas City, at the Southwestern Flour Laboratories.

By Mr. Elliott:

Q. Bleached and unbleached flours? A. Yes, sir.

Q. So, when you were giving Mr. Butler your reasons, I will ask you if they were based, in part, at least, upon the result of analysis that you had actually made. A. Yes, sir.

Mr. Butler: Then, I move to strike out his reasons, as based upon hearsay.

The Court: I am not going to strike it out, but you cannot get in here, by hearsay, on analysis by this Southwestern Company.

Mr. Elliott: I am not trying to do it. Just the fact.

The Court: Well, he said it was analyzed by this South-western Company, here in Kansas City.

Mr. Elliott: I did not ask him what the analysis was, and I am not going to.

The Court: Well, go on. Anything further?

Mr. Elliott: I think that is all.

Recross-Examination

By Mr. Butler:

Q. You say that the gas pours down with the flour?

A. No. I did not say it pours down.

Q. Comes down, falls down, slides down, and gets
1668 down with it. Is that it?

A. I said that in my opinion the gas came into the bin from the agitator with the flour.

Q. That is the only place it could get in, isn't it? So that the flour in that bin is exposed to gas, in there, all the time, isn't it? A. The flour don't stay in the whole bin.

Q. How long? That bin is six by ten, isn't it? How long does it stay in the bin?

A. On an average, I would imagine, about five minutes.

Q. So that all of your bleached flour is exposed to this gas about five minutes, instead of fifteen or twenty-one seconds, isn't it? Isn't it? A. No, not all of it.

Q. The bin is full of gas, isn't it?

A. That flour comes right out of the bin, into a hopper, and goes to the packer. The packers are supposed to keep that flour away, as fast as it is made.

Q. Yes, but here is your agitator up here, we will say (indicating) and here is your bin, down here—whatever the shape of the thing is. That bin is about six by six by ten, isn't it?

A. It is about six by six by—

Q. (interrupting) Ten high? A. Yes, about that.

Q. Some times it is partly full, and sometimes it is full?

A. That isn't exactly the measurements, but it would average about that.

Q. Sometimes it is partly full and sometimes it is full?

A. No, sir, it is not. It is never full, as I know of.

Q. Well, fuller than others? Do you say that that flour is not delayed, going through that, as a rule, five minutes?

A. Not more than that.

[A.] And, all that time that is going on, the gas is coming down, going into this room?

A. There is very little gas in that bin.

Q. What becomes of it, do you think?

A. I don't know. I don't think it comes in.

Q. You don't think it would make much gas, do you? Do you? A. I could not tell as to that.

Q. No? You don't know how many horse-power you have there? Isn't it true that sometimes the same flour remains in this room, six by six by ten, or thereabout, for fifteen or twenty minutes? Isn't that true?

A. I would think not.

Q. Well, now, do you know anything about it at all?

A. Why, certainly.

Q. Yes? Well, now, isn't it true that sometimes it remains there fifteen or twenty minutes? Isn't it true that the flour sometimes remains in this bin fifteen or twenty minutes?

A. Not very often.

Q. But sometimes?

A. I could not say as to that.

Q. Fifteen minutes? A. (No response.)

Q. Well, no matter how long it remains there, it is in the gas, isn't it? The room is filled with the gas, isn't it.

A. No, I don't think that room is filled with gas.

Q. Where do you think the gas goes? You have a machine, you don't know how big, to make it, and you have it air tight from the agitator. Now, it doesn't escape from the agitator, does it?

A. If you open that door, you would smell a very little gas.

Q. I am not asking you that, but I asked you where this gas gets out.

A. I do not think it comes out of the agitator.

Q. You think it stays in the agitator? A. Yes.

Q. So, then, you think that—

Mr. Butler: Oh, well. That is all. He thinks it stays in the agitator.

Recess was then taken for five minutes.

L. N. Shoecraft, called as a witness on behalf of the claimant, being first duly sworn, was examined, and testifies, as follows:

1670 Direct Examination

By Mr. Elliott:

Q. What is your name?

A. L. N. Shoecraft.

Q. And your residence? A. Clinton, Iowa.

Q. What is your business?

A. Wholesale flour—jobbing of flour.

Q. You buy flour from the Wells-Abbott-Neeman Company, of Skuyler, Nebraska? A. Yes, sir.

Q. Do you buy bleached flour from the Wells-Abbott-Neeman Company, knowing that it is bleached?

A. Why, they say it is bleached.

Q. Do you buy bleached flour in preference to unbleached flour?

Mr. Butler: Objected to as irrelevant and immaterial.

The Court: He may answer that.

A. Yes.

By Mr. Elliott:

Q. Why?

A. Because our trade like it better.

Mr. Butler: I move to strike it out, as giving a conclusion, being irrelevant, incompetent and immaterial.

Mr. Elliott: You think it is not competent for him to state.

The Court: That is competent, but that involves another question.

Mr. Butler: That involves what somebody else thinks, and he can't show what they think, without saying what they say, and he can't give that, without it being hearsay. Just like bringing a man in from another building, to tell what happens in a mill.

The Court: That part of the answer is stricken out.

Mr. Scarritt: Can't we show, if Your Honor, please, the public demand for this kind of flour—bleached flour?

The Court: This involves what I was trying to say this morning when you took exceptions to my remarks, precisely, that that involves whether or not the consumer—the bread eater, comprising the entire human family, perhaps, three times per day—

1671 Mr. Scarritt: (interrupting) If your Honor please, there is a rule of evidence. Now, we cannot bring every member of the public here. Your Honor would not permit it, and very properly so, and the only way we can get at this fact is by this kind of testimony. It is just like a question of notoriety in a criminal case, or in any other case, where all the people are advised of the one thing, and you can prove it by those who know that fact, without bringing in the whole public, to have each one of them testify that they demand this flour, and they use this flour, and they want this flour, and that this flour satisfies the public demand.

Mr. Butler: So might cocaine.

The Court: Just wait a moment. Suppose you take milk, and the customer is satisfied with it.

Mr. Scarritt: Now, that is not the question.

The Court: No, this is milk, and that is flour.

Mr. Scarritt: I was not objecting to Your Honor's illustration, but what I was going to say was, the question of poison is not in this case. The question of quality and inferiority—that is what this testimony goes to—not to the poisonous and deleterious ingredients.

The Court: It is pretty hard to distinguish. Of course, they must go step at a time. I don't know that I shall cut it out, one step at a time, because they do not cover the whole case, but, unless you gentlemen can change my mind between this and the time I charge the jury, I shall charge the jury that this Pure Food and Drugs Act is for the consumers,—not such gentlemen as this, who buy and resell, but for the bread eaters.

Mr. Scarritt: That is what we want to get at.

The Court: Well, I see you do. I will help you get at it.

Mr. Scarritt: How are we going to get at it?

The Court: Perhaps there is no one illustration that exactly illustrates my views, but, I, for years, drank milk, every meal I could get it, until I found it was loaded 1672 with formaldehyde, and other preservatives. So it is with our ham. So it is with [out] pickles. So it was with cane sugar, and beet sugar.

Mr. Helm: I suppose that is true of our ham, as long as we have smoked ham, isn't it?

The Court: No, it is of recent date.

Mr. Helm: It is my understanding it applies to ham smoked in an ordinary hickory wood fire.

The Court: No, I am not talking about ham smoked with hickory fire. I am talking about the new fangled hams. These illustrations, of course, some of them may be in point, and some of them may not be in point, but a party may be able to sell a great amount of hams that are loaded with preservatives. The trade may call for them. The trade may demand a great quantity of this milk, part of which is still being sold, and so on, with other adulterations. The trade may demand it, and, with some articles, the trade does demand it, apparently.

But the question still remains as to whether this statute covers such things. I will let him answer.

By Mr. Elliott:

Q. Now, I will ask you what class of people you sell to.

A. Sell to dealers and bakers.

Q. I will ask you if you remember buying some bleached flour from the Wells-Abbott-Neeman Company, in Skuyler, Nebraska, in March, 1909. A. Yes, sir.

Q. How much? A. Six hundred and fifteen sacks.

Q. How much of that flour did you sell?

Mr. Butler: That is objected to as irrelevant and incompetent.

The Court: Go on.

A. It was sold, all but twelve sacks.

Q. What did you do with the twelve sacks?

A. Retained them, for personal use.

Q: Have you been using this flour for making bread at
1673 your home, from that time to the present? A. Yes.

Q. Have you noticed any difference in the bread made from that flour, recently, and when you first used it, over a year ago? A. No, I have not.

Q. Have you some of that flour with you? A. Yes, sir.

Q. Will you let us see it?

The witness thereupon produced a sample of flour, as requested, which was marked by the reporter "Claimants' Exhibit 249."

By Mr. Elliott:

Q. I hand you Exhibit 249, claimants' exhibit, and ask you if you recognize that as the sack containing the flour you have referred to. A. Yes, sir.

Q. Will you kindly remove some of that flour, and exhibit it to the jury?

Witness does as requested.

Q. What is the brand on that?

A. "Puritan". There is no brand on that sack. I took it out of a "Puritan" sack.

By Mr. Butler:

Q. No brand on this sack? A. No.

Mr. Elliott: He simply took a sack, and brought some of that flour with him.

By a juror:

Q. It is not in the original package, then?

A. No. I took it from the original.

Mr. Elliott: I offer the flour in evidence.

Cross-Examination

By Mr. Butler:

Q. You hold that bleaching preserves flour, don't you?

A. I did not say that.

Mr. Scarritt: We object to that as irrelevant.

The Court: Overruled.

1674 A. (Continuing) I am not an expert. I don't know anything about the flour. We simply buy this flour, guaranteed, if it doesn't satisfy our trade we send it back.

Mr. Butler: I move to strike out that part of the answer.

The Court: Yes. It may be stricken out.

Mr. Butler: Now, I move to strike out this flour that has been brought in here, because no foundation has been laid, incompetent, irrelevant and immaterial. What does a sack of flour made by Wells-Abbott-Neeman & Company show, that he says they say it was bleached? Was it bleached with formaldehyde, or nitrosyl chloride, or how was it bleached? That is no evidence in this case. This is purely hippodromic.

The Court: I assume it will be followed up.

Mr. Butler: Followed up by what evidence?

Mr. Elliott: The witness has the original bill of lading from Mr. Abbott, and Mr. Abbott is here to swear it was that flour he sold him at that time.

By Mr. Butler:

Q. What was it branded? A. "Puritan."

Q. Was it patent flour?

A. I could put that out for patent.

Q. Was it branded "Patent"?

A. I don't remember. I could not tell you.

Q. Why didn't you bring down one of the sacks it was shipped in? A. I didn't know that was necessary.

Q. Why? A. Because I wasn't told.

Q. Were you told not to?

A. No, sir. You can have the sack. I can wire for that, if you want it.

Q. Better do that, and let us see the original package. How many months did you have this flour?

A. That car of flour was shipped March 12, 1909.

Q. March 12, 1909? How long had it been made when you got it? Did they tell you that? A. I don't know.

Q. So, it is at least fifteen months old? Was it kept in your kitchen? A. No, sir.

Q. Where was it kept?

A. It was kept in our ware room.

1675 Q. Kept with other bleached flour?

A. I don't know.

Q. Why did you keep this for fifteen months?

A. I just told you we kept it for our personal use.

Q. Why did you keep it for your personal use?

A. Because we preferred it.

Q. Did you have other bleached flour?

A. We didn't want to take any chances. We liked this, and we kept that.

Q. You have been dealing in bleached flour ever since, haven't you? A. I don't know.

Q. I thought you were a flour merchant? A. Yes, sir.

Q. Can you tell bleached flour?

A. No, sir. I don't know anything about it? I am not an expert.

Q. You don't know anything about bleached flour?

A. No, sir.

Q. Do you say this flour is bleached?

A. I don't know. I told you we bought it for bleached flour.

[A.] Aren't you a broker for Wells-Abbott-Neeman?

A. No, sir.

Q. Don't you habitually handle their flour?

A. We buy their flour. We are not brokers.

Q. Don't you habitually buy their flour? A. Yes.

Q. Tell me why you kept this flour, for personal consumption, for fifteen months? A. Because we liked that flour.

Q. That is this particular lot of flour?

A. This particular lot of flour. Didn't want to take any chances.

Q. Better than any other made by Wells-Abbott-Neeman?

A. Well, he told me that he was going to discontinue bleaching.

Q. I am asking you what you liked.

A. I told you I like that flour.

Q. You were afraid you could never get any more bleached flour?

A. We kept it, because we did not want to take any chances.

Q. He told you he was going to quit bleaching? A. Yes.

Q. Last March? A. I don't remember when.

Q. When did he tell you that?

A. Oh, no. Now, I'll tell you how we happened to have this.

Q. I want to find out why you kept this flour for fifteen months.

1676 A. I'll tell you. (producing papers) Come here. This flour was bought in a towel bag.

By the Court:

Q. What?

A. In a toweling bag—what is called as a “toweling bag” and it costs fifteen cents a barrel more for the bags than the ordinary bag. We tried to introduce this flour, because—we tried to introduce it at Clinton, because a great deal of the toweling bag was sold in Davenport, but we could not introduce it at Clinton, then because they would not pay the difference in price.

Q. You could not introduce the bleached flour at Clinton?

A. We could not introduce the toweling bag, because it costs fifteen cents more.

Q. You could not introduce the bag?

A. It would not go, because the bakers and grocers would not pay the fifteen cents more.

Q. Do you advertise? A. Certainly.

Q. Do you advertise that you deal in bleached flour?

A. We do not, no, sir.

Q. Why? A. It is unnecessary.

Q. If you say your customers are clamoring for it, why don't you advertise it? A. Because it shows for itself.

Q. How does it show for itself.

A. Because all the people want it.

Q. Who ever asked you for bleached flour? Give me the name of the consumer, or a baker, who has asked you for bleached flour.

A. We do not sell to the consumer. We sell to the grocers.

Q. Are the grocery men pretty observing about the price, so that fifteen cents a barrel will put it out? Can you sell bleached a little cheaper than you can unbleached?

A. Not that I know of. I don't know as there is any difference between the bleached and unbleached. Not that I know of. I don't know.

Q. What?

A. I don't think there is any difference between the bleached and unbleached.

Q. What kind of flour do you sell?

A. I don't know whether it is bleached or not.

1677 Q. Well, now, if this is so popular with the people who eat flour, and the bakers—by those bakers that you sell to, do they advertise this bread made from bleached flour?

A. I don't know.

Q. Do the grocery men advertise that “We sell bleached flour here”? A. I don't know.

Q. And you were brought here to show that the people demanded it?

A. I was brought here to show that this was a sample of bleached flour.

Q. Now, give me the name of a baker who refuses to buy unbleached flour, at anything like the same price.

A. I don't understand the question.

Q. Give me the name of a baker who refuses to buy unbleached flour. A. I don't know as I can.

Q. Give me the name of a dealer.

A. I am not a salesman. I am an office man.

Q. Yes, I think so. You are another man that don't know the trade. Give me the name of a grocery man who refuses unbleached flour. A. Who refuses to buy unbleached flour?

Q. Yes. A. I can give you the name of a lot of them.

Q. All right. Do it, and give us their addresses.

A. I can give you Walker & Company, Dewitt, Iowa.

Q. Now, who with Walker & Company, refuses to buy unbleached flour? A. Mr. Walker.

Q. What is his first name? A. I don't know.

Q. When did he refuse? A. I could not tell you that.

Q. To whom did he refuse? A. He refused to me.

Q. When? A. I could not tell you that.

Q. Where?

A. I talked with him over the telephone. We could not sell him this flour, because he was to buy other Nebraska flour that was bleached.

Q. Now, you could not sell him what flour?

A. Could not sell him unbleached.

Q. Because he was buying—

A. (interrupting) Other flour that was bleached.

Q. Whose unbleached flour did he refuse to buy?

A. He refused to buy our unbleached flour.

1678 Q. Who do you mean by "ours"?

A. Well, Abbott-Neeman. We are their agents.

Q. What? A. Wells-Abbott-Neeman.

Q. Why do you say "our" flour and Well-Abbott-Neeman?

A. Because we are their agents.

Q. That is what I asked you and you denied it a while ago.

A. No. I did not deny that.

Q. I asked you if you were not a broker for Wells-Abbott-Neeman. A. I am not a broker.

Q. You are just agents? A. Yes.

Q. I meant agent. I was inaccurate in my expression. You were just an agent, and not a broker? A. Yes, sir.

Q. Now, Wells-Abbott-Neeman, who furnished you this flour, had some flour with you for sale, to—what is his name?

A. Walker & Company.

Q. Yes.

A. We had previously shipped them flour, in carload lots that was bleached—that is, before we discontinued bleaching, and they could not handle the unbleached.

Q. When did Wells-Abbott-Neeman quit bleaching?

A. I could not tell you.

Q. Have they quit bleaching?

A. They did for a time, I think.

Q. What? A. I could not give you the dates.

Q. Aren't they here, now?

Mr. Elliott: Yes, Mr. Abbott is coming on the stand.

By Mr. Butler:

Q. Contributing to the defence of this lawsuit, against a man in another state?

Mr. Elliott: I object to that, if your Honor please.

A. I don't know anything about that.

By Mr. Butler:

Q. Now, what brand of flour did Walker refuse?

Q. The Wells, Abbott & Behman flour.

Q. What brand?

A. Well, now, I could not just tell you the brand.

Mr. Scarritt: This same brand, unbleached?

1679 A. Yes.

By Mr. Butler:

Q. What price? A. I could not tell you the price.

Q. What price was he paying for the bleached?

A. I could not tell you.

Q. Now, have you told us all about Walker?

A. I think so.

Q. Now, give us the name of another grocer.

A. Why, I can't remember all these things.

Q. No?

A. If you had told me you wanted it, and asked me all these things, I would have come down pat on them.

Q. Yes, if you had come around and told me what you were going to tell, I would have told you I would want these things.

A. Sorry I did not.

Q. Now, give me another grocer who refused to buy unbleached flour.

A. I don't know as I can tell you of another grocer.

Q. Now, tell me a baker who refuses to buy unbleached flour.

[Q]. I told you I was not a salesman. I do not know.

Q. Now, have you given to the jury all of the details that you can, with respect to the refusal to take unbleached flour? Have you given all of the details? A. I guess I have.

Q. All of the details as to price?

A. Yes, I have told you everything, I guess.

Q. Now, tell me a consumer who refuses to buy unbleached flour.

A. We do not sell to consumers. I do not know anything about that.

Q. Do you know of any other? A. No.

Q. Then, the sum total of it is this, that all that you can tell us about is that one groceryman, named Walker, at some point in Iowa, refused to buy some flour of Wells, Abbott & Behman Company, which was unbleached, because they had got other Nebraska flour that was bleached? A. Yes.

1680 Q. And you do not know the price they got that at, or the price you offered them Wells, Abbott & Behman's flour at? A. No.

Q. And therefore, you say—

A. (Interrupting) I can send you down quite a list of them, though, if you want them.

Q. You had better bring them back, because I might ask you some questions about that. A. All right.

Q. Better go and bring them back. A. All right.

Q. So, therefore, on that information, you say, in answer to Mr. Elliott's questions, that you prefer to buy the bleached "because my trade demands it"?

A. I said because they preferred it.

Q. And the only instance you can give is one, and you cannot tell the kind of flour that was in competition with it, or the price?

(No response.)

Mr. Butler: That is all.

Redirect Examination

By Mr. Elliott:

Q. Notwithstanding my brother Butler's question, I will ask you if you know the fact to be as you have stated?

Mr. Butler: Now, just wait. That is objected to as leading and repetition. It is perfectly outrageous to bring these men here, who don't know anything, to testify to what other people say.

Mr. Scarritt: We object to that, if Your Honor please.

Mr. Elliott: I don't know why you say that.

Mr. Butler: I do say that.

Mr. Helm: A man may know the fact, without being told.

The Court: Now, gentlemen, there are four of you. Now, who is to talk for the defense?

Mr. Scarritt: Mr. Elliott.

The Court: All right. Now, Mr. Elliott, go on.

Mr. Elliott: I simply state, your Honor, it seems to me a witness can give his testimony as a fact within his knowledge, although he may not be able to indicate every specific instance of it, and call the name. That is what I mean.

1681 The Court: I understand what the witness has testified to.

By Mr. Elliott:

Q. Do you know, of your knowledge the fact to be as you have stated, although you cannot name every specific instance?

A. Yes, sir.

Q. Did you ever hear of a grocer advertising bleached sugar? No, sir.

Mr. Butler: That is objected to as immaterial and irrelevant.

Mr. Elliott: Well, you have been asking if he advertised bleached flour and I want to ask him if he ever knew of a grocer advertising bleached sugar.

The Court: He may answer that question.

A. No, sir.

By Mr. Elliott:

Q. Did you ever hear of a grocer advertising bleached butter? A. No, sir.

Recross Examination

By Mr. Butler:

Q. Are you a grocer? A. No, sir.

Q. You don't know anything about that? You are an office man, I understand? A. Yes, sir.

Witness Excused.

T. J. Holderidge, called as a witness on behalf of claimant, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. What is your name? A. T. J. Holderidge.

1682 Q. What is your occupation?

A. I am Mill Manager—milling business.

Q. How long have you been in the milling business?

A. Eighteen or twenty years.

The Court: Where does he reside?

A. Kingman, Kansas.

By Mr. Elliott:

Q. What is the capacity of your mill?

A. 600 barrels in 24 hours.

Q. How long has your mill been running?

A. A little over five years.

Q. Do you use an Alsop bleacher? A. Yes, sir.

Q. Have you used an Alsop bleacher all the time?

A. Ever since the mill started, yes, sir.

Q. How many grades of flour do you make?

A. Well, we make an 80 per cent patent, and we make a straight grade, what we call a straight grade, and a baker's, 17 or 18 per cent.

Mr. Lyon: We cannot hear you, Mr. Holderidge.

A. We make a baker's of 17 or 18, per cent.

By Mr. Elliott:

Q. Is that the same as you have heard called as a "clear"?

A. Yes, it means the same thing, I guess.

Q. Now, what grades do you bleach?

A. We bleach our patent, and our straight grade.

Q. How do you brand them?

A. The patent is branded "High Patent" and the straight is branded "patent".

Q. Do you bleach your clear? A. Seldom ever.

Q. I will ask you, can you change the grade of a flour by bleaching it?

A. No, we cannot change the grade.

Q. Can you bleach a lower grade, and make it look like a higher grade? A. No, sir.

Q. Do you sell flour to the family trade? A. Yes, sir.

Q. Do you use it in your own family? A. Yes, sir.

1683 Q. When I said flour, I meant bleached flour.

A. Yes, sir. We use bleached flour in my own family.

Q. Have you replaced any pipes, valves, or rubber hose, connected with this Alsop bleacher, since it was installed?

A. No, sir. No new ones.

Q. How does flour bleached by the Alsop process compare, in quality and strength with flour that is naturally bleached?

A. Well, they are about the same thing, I think.

Cross Examination

By Mr. Butler:

Q. When did you first hear the word "natural bleaching" used?

A. Well, that is the way they always used to bleach it.

Q. I am not asking you that.

Mr. Butler: I move to strike that out.

The Court: Yes, that is not an answer.

By Mr. Butler:

Q. They used to call it "aged" wasn't it? A. Yes.

Q. The word "naturally bleached" was not a common word in the milling art, before the artificial bleaching commenced?

A. No, I think not.

Q. It is not yet, is it? A. No, I don't think so.

Q. That is coined out of the litigation, isn't it?

A. Yes, it used to explain the difference.

Q. That is coined out of the litigation, isn't it?

A. Yes, I think so.

Q. That is not a word of the trade? A. No, sir.

Q. Is an 80 per cent patent a higher grade than a straight?

A. Yes, sir.

Q. If they be made out of the same wheat, and under like conditions, Mr. Holderidge, will the 80 per cent patent naturally be lighter in color than the straight? A. Yes, sir.

Q. Is it true that, generally speaking, before the artificial bleaching commenced, that the color of flour was an important consideration in flour?

A. Yes, sir.

Q. And is it also true, Mr. Holderidge, that, formerly, before the bleaching came in, the color of flour indicated, not exactly as to percentages, but, in a broad way, the quality of the flour?

A. Well, certain wheat has a yellow cast, makes a yellow cast of flour. Well, Turkey wheat makes a whiter flour—much whiter; a whiter flour sells for the best price in the market.

Q. Now, see that I understand this right: Different kinds of wheat make different color flours—different shades, we will say, instead of different colors? A. Yes, sir.

Q. So that the natural color would indicate, roughly speaking, if you knew the kind of wheat that was used—would indicate the length of the patent, or whether it was a straight or a clear?

A. Well, yes, sir, to a certain extent it would.

Q. And still more widely speaking, they tell me that, in southeast Missouri, and in the southern country of Kentucky, it has appeared here, there is a soft winter wheat that makes a very white flour?

A. Yes, I think so.

Q. Whiter, perhaps, than even the Turkey?

A. Yes, soft wheat is whiter.

Q. So that the color would be one of the indexes by which you could tell the quality of the flour, and the kind of wheat, or class of wheat, out of which it was made? A. Yes, sir.

Q. Now, that is true? A. Yes, sir.

Q. So that, before the bleaching, color was an index to the kind of flour, and the kind of wheat from which the flour was made—not an exact index, but of some flour, to an experienced eye? A. What is that?

Q. I say, before the bleaching, the natural color of the flour was of some flour, an index of quality of the flour, and of the kind of wheat it was made from? A. Yes.

1685 Q. Now, you, yourself, are familiar with the bleacher, are you?

A. I do not handle it. I use it. I have it done.

Q. Well, that is unfortunate, I think. I don't want to annoy you with questions that you do not know about. But, if you are intimately familiar with the Alsop bleacher, I would like to ask you. Now, are you intimately familiar with it?

A. I have had it working in the mill all the time; I see it every day or two—see it working.

Q. Do you adjust it? A. No, sir, I do not.

Q. Do you know how to make a stronger gas, or a weaker gas? Do you understand that yourself?

A. No, I do not think they change that, very often.

Q. No, but do you understand about that? A. No, sir.

Q. And you do not know how the miller, or the man who actually does the milling, does that?

A. It is set, and it runs the same way all the time. They do not change that.

Q. Well, you can control the flow of the air, can't you?

A. No, I don't think so.

Q. No means of controlling the flow of the air?

A. They can shut off a little, I think, of the air.

Q. Then, are you aware that it makes a stronger gas—that it is more concentrated, I mean? We take a given amount of gas, and then, if you dilute it with a large volume of air, the mixture will be more dilute, and, if you shut off the air, it is stronger? A. Yes, sir.

A. Yes, sir.

Q. Then, are you familiar, too, with the fact that they can control bleaching, that is, I don't mean with the finest exactness, but they can bleach light, or heavier? A. Yes, sir.

Q. So that, then, this bleacher helps you control the color of your product? A. That is what we use it for.

Q. And, by bleaching, the natural color is modified, or changed, or eliminated? Isn't that true?

1686 A. Changed some, to a certain extent, yes, sir.

Q. And if you would hit it hard enough, it would probably drive it all out, wouldn't it?

A. I don't think so; we don't bleach very hard; we bleach lightly.

Q. So that, as I get your meaning, the truth of the matter is this. We will say your straight flour, if bleached, would be lighter in color than your patent flour, unbleached.

A. Well, not very much difference, I don't think.

Q. Would make it look—

A. (interrupting) It makes a greyish color, instead of a white.

Q. Creamy color? A. Creamy color.

Q. The natural color of flour is creamy? That is, a tinge of yellow?

A. Yes. Where they have some yellowberry wheat, it makes a creamy colored, or yellow.

Q. The yellow is strongest?

A. No, sir, I do not think so. I think the Turkey is the strongest.

Q. Strongest yellow? A. No, the strongest flour?

Q. I mean the color in the flour is strongest?

A. I don't think so.

Q. Now, in the case of the yellowberry, is it?

A. No. I think the Turkey wheat makes the strongest flour.

Q. I am not speaking of the strength of the flour, but the color. The light, yellow—creamish? A. No, sir.

Q. Now, what I am trying to get at is this: Some flours have a little more creamy color, or stronger yellow, than others? A. Yes, sir.

Q. Now, the Turkey wheat, or the yellowberry—which has the stronger yellow color?

A. The yellowberry has the more yellow.

Q. The more yellow? A. Yes.

Q. Now, then, by bleaching, we will say a straight flour, if you bleach it, it could be brought down to the color of a 70 per cent patent, we will say, made from the same wheat, couldn't it?

1687 A. Not exactly.

Q. Not to exactly the same color, but it could be made lighter, even? A. That is right.

Q. So that, if you bleach your clear—which you do not do very often, you tell us? A. No, sir.

Q. —and mix it with your patent, which was bleached, then, the whole mixture would be lighter colored, than if you had not bleached it?

A. Yes, it would be lighter.

Q. Now, in the old days, before this bleaching commenced, when you knew the wheat, the lighter the color, the more desirable and valuable and better the flour?

A. Yes, sir, selling qualities.

Q. I mean the more valuable in the market?

A. Yes, sir.

Q. The more desirable to the consumer?

A. Yes, sir.

Q. So that this bleaching will take the flour which, before bleaching, was less desirable in appearance, less marketable, less value in the market, and bring it near to the appearance of the more desirable and more valuable flour in the market?

A. Yes, sir.

Q. That is, in fact, the purpose of bleaching, isn't it?

A. Yes, sir, it is to whiten it, and to age it.

Q. I will come to the aging a little later on. Of course, the aging part is also a whitening process, is it not?

A. Yes.

Q. Now, in the natural aging, the flour still retains some of this beautiful creamy color, does it not, or does it become a dead, ashen white, like the bleached flour?

A. No, it don't become ashen white. It gets whiter, the longer it stands, to a certain length of time.

Q. Now, does this bleaching—it does not give it exactly the same shade as natural aging?

A. Not exactly.

Q. You can slick them down, and bring them together, and they are not the same, are they?

1688 A. Not exactly, no, sir.

Q. You never in your life saw bleaching match up with naturally aged color, did you, exactly, so you could not tell which was which?

A. No, sir, not exactly.

Q. An experienced eye, with the standard to go by, knowing that one is bleached and one is not, can always tell which was bleached and which was not, if he knows one is and the other isn't?

A. Well, I think they can very nearly.

Q. But, if you do not know whether either is bleached, or whether both are bleached, then nobody can tell which is which, can they?

A. Well, that ain't always the way flour is tested—by the color.

Q. No, but I am speaking, now, of the color. I will come to the other part later. I will be perfectly fair to the other part. Now, that is true with respect to the color, isn't it?

A. Well, to a certain extent, yes, sir.

Q. So that it is fair to generalize, from these details that you have given, that the bleaching does not exactly duplicate the color of natural aging? A. No, sir.

Q. That is true, isn't it? A. Yes, sir.

Q. And that is true in all of these cases of bleaching that you have observed, isn't it?

A. Well, yes, I think so.

Q. Now, then, we will go to the natural aging process. Let us see, now, if we understand yet, some of the truths of milling. It is true, is it not, that, other things being equal, that wheat which has been through the sweat in the stack, and again in the bin, and given some time to condition, is then in the best condition for milling? A. Yes, sir.

Q. You have been in the milling business for a good while, have you? A. Yes, sir.

Q. How long?

A. Eighteen to twenty years.

Q. Always in Kansas?

A. Kansas and northern Oklahoma.

Q. Was it ever customary in that territory, in your time, to stack the grains before threshing? 1698

A. Some of them, and some threshed right out of the fields.

Q. And it goes through a sweat in the stack?

A. In the stack.

Q. And give it time enough?

A. And give it time enough.

Q. And again in the bin?

A. In the bin, if it goes through in the stack, they don't need to in the bin.

Q. But it will, to some extent, in the bin?

A. To some extent, yes, sir.

Q. And this sweat means it gives off a little moisture, around each kernel, does it not, and it warms up a little—not enough to heat, or enough to sprout.

A. It is dried. It will not sprout.

Q. If there is water from the outside, it will rot, or sprout, and must? A. Yes.

Q. But, if there is nothing but the natural moisture there, it will just sweat a little, and perhaps warm up a little?

A. Yes, come out of it all right.

Q. But the heat would not be perceptible, if you plunge your arm into it? A. No.

Q. Now, taking wheat of that kind that is aged right, and been through the sweat, a good wheat, and make your flour from it, that flour, when fresh, is not quite as good as it will become a little later on, is it?

A. No, sir; if it stands two or three months it gets better.

Q. That is the natural aging? A. Yes, sir.

Q. Now, if the natural aging of flour—and, from now on, we will call it “old wheat”,—the flour made from old wheat, makes its color a little whiter, does it not?

A. Natural aging?

Q. Yes.

A. Makes it dryer, the longer it stands, to a certain length of time.

Q. And then it begins to break, and go back? I do not mean as to color, but as to quality?

A. Well, I think so, to a certain extent.

1690 Q. Well, it will spoil, if kept too long?

A. Yes, it won't keep through hot weather, every year.

Q. Spoil in a year, as a rule? A. Yes, sir.

Q. The unbleached flour? A. Yes, sir, anywhere.

Q. Any flour, except this Wells, Abbott & Behman's that was bleached?

Mr. Helm: That will spoil in three months, according to the testimony.

Mr. Butler: No; he had it fifteen months.

Q. Now, are you familiar with the doughing of this flour, after it is naturally aged, made from old wheat, and naturally aged flour? Are you familiar with the changes that take place in the bread making qualities?

A. No, sir; I am not an expert.

Q. You do not dough it up?

A. We do sometimes, yes, sir.

Q. Now, is it known to you that the bread made from the naturally aged flour is better bread than if it was made from the fresh flour, even if that flour was made from old wheat?

A. Yes, sir.

Q. That has been the general understanding, has it not, of housewives, and millers, and bakers? A. Yes, sir.

Q. Ever since you knew anything about flour?

A. Yes, sir.

Q. But now, as to what chemical changes take place to bring that about, you do not know?

A. Well, it becomes whiter, and works better.

Q. Now, what change takes place in the substance, to make it work better, is what I mean, by my question.

A. No, I am not familiar with that.

Q. You don't know whether that is in the gluten or in the starch or what part? A. No.

Q. But it is a matter of common knowledge that it does change, isn't it? A. Yes.

Q. And that is called the aging of flour, isn't it?

A. Yes, sir.

1691 Q. Now, in bleaching the flour, when it comes from the mill, you can make it look very nearly like the naturally aged flour, can't you? A. Yes, sir.

Q. Now, did you ever take that flour that was bleached, and made careful baking tests, to compare its baking qualities with the same kind of flour that was not bleached, but which was naturally aged?

A. No, sir, I have not made any such tests.

Q. And you are not able to state about that?

A. No, sir.

Q. Now, if you take the flour made from wheat that is fresh from the harvest—new wheat—that is darker than the flour made from the same wheat, after it has been conditioned, isn't it? A. Yes, sir.

Q. In color? A. It won't make up so good.

Q. But, if you bleach it, you can make it look about the same, can't you? A. Yes, sir.

Q. You can not only make it look the same as flour made from the old wheat, but you can make it look the same as flour made from the old wheat which has been aged after making? Do you follow me?

A. No, I do not know as I understand the last part of it.

Q. When you take the flour from the new wheat, fresh from the harvest, make it, and bleach it, you can make that look as good as the flour made from old wheat, after that flour has aged three months, or four? A. Yes, sir, practically as good.

Q. Now, have you ever made any tests of that? You do not know what chemical changes take place in this bleaching?

A. No, sir.

Q. And you do not know whether they are the same chemical changes that take place by the natural aging?

A. No, I do not know whether it is the same or not.

Q. But you do know that the artificial color, or bleaching, is a good deal like the natural color, with aging, do you?

A. Not exactly the same.

Q. Now, do you know how many horse power of current you use? A. How many what?

Q. Horse power of current you use to make this bleaching gas? A. I don't think it is measured that way.

Q. Well, kilowatts,—or amperes?

A. That is what they call so many kilowatts. We buy a bleacher to bleach so many barrels of flour in a mill of 500 barrels, say.

Q. As I understand it, then, this Alsop bleacher is arranged, so they have a certain strength for a certain capacity—100 would be one, and 200 would be one and 300, one?

A. Yes, sir.

Q. Now, do you happen to know the number of horse power that your bleacher uses—yours is a 500 mill? A. Yes, sir.

Q. Do you know how many? A. No, sir.

Q. Do you smell the gas about the mill? A. No, sir.

Q. Did you ever smell it at all?

A. I do, if I go up to the bin, where it empties from the agitator, that is. I smell it there, a little.

Q. You smell the gas in the bin?

A. Yes, sir, when the flour is in there, a little.

Q. Goes down out of the agitator?

A. Well, that is the way it works in there, yes, sir.

Q. The gas is conducted to one end of the agitator by a pipe? A. Yes, sir.

Q. And then the flour runs through the agitator, and the flour goes out of the agitator into a bin?

A. It goes out there, yes.

Q. That is a packer, is it? A. Yes.

Q. That will hold, say 100 barrels of flour?

A. No, it won't hold one fourth of that.

Q. Twenty-five? A. Yes.

Q. And the flour remains in that a few minutes?

A. They aim to take it right along, all the time, as they make it.

Q. But the flour would be in there some time?

A. Occasionally it is in there two minutes, and most of the time it is taken right out, as fast as they make it.

1693 Q. It would average five minutes? A. No.

Q. Three? A. Two or three, I guess.

Q. Sometimes a little remains there over night? A. Yes.

Q. Might be a few barrels in there—four or five barrels in there over night? A. Yes, sir.

Q. Exposed to the gas over night?

A. The gas rises to the top, and works right out.

Q. And works back up the spouts again?

A. I didn't say that.

Q. Is this thing opened at the top?

A. No, it is closed, or practically closed tight.

Q. So that the only hole in the top is the spout coming from the agitator, isn't it?

A. That is open, if it is standing still—the mill, or anything.

Q. That is the only inlet at the top, I mean? A. Yes.

Q. So that the gas arises to the top? The only place it could get out would be at the same place it gets in?

A. Well, there ain't very much there.

Q. No, I am not speaking of the quantity, but I am speaking of the situation. That is true, isn't it?

A. I think that is true.

Q. So that, whatever gas has accumulated in the bin, during the day, would be there, unless it was light enough to go out through the top?

A. It escapes out of the bin all the time. There ain't much there, no time.

Q. Is it within your knowledge that the gas is heavier than air, and settles?

A. No, I don't think so. I think it is lighter.

Q. You think the Alsop gas is lighter than the air?

A. I think so, I don't know. That is my understanding. I don't know as that is correct.

Q. Now, do you work the mill night and day, always?

A. Yes, sir, nearly all the time.

Q. Do you sometimes pause for lunch? A. No, sir.

1694 Q. Or dinner? A. No, sir.

Q. So, there is usually not a stop? A. No stop.

Q. Run along a week, sometimes, without stopping?

A. Yes, sir. Start up Monday morning, and run until midnight, Saturday night.

Q. So that, how many barrels do you think would average in this bin?

A. Most of the time there isn't any. They keep it right up, as fast as they make it, but they might stop for five or ten minutes, and it would fill in, and then they take it all out again.

Q. Yes, that is true, but you do not know the gas and the flour comes down into this bin, and down, on through?

A. There isn't very much gas goes through. It is more apt to go up, than down, would be my opinion.

Q. I am not asking you how much, but whatever does come down. A. Yes, sir.

Q. Goes right on through, if it goes down, and goes right into the sack, doesn't it?

A. There is a hole in the bottom of the agitator, and the flour drops through, and a certain per cent or amount of the gas works through with it—a little.

Q. Now, have you observed this—the flour comes down hill to the agitator, doesn't it? A. Yes, sir.

Q. The gas goes in at the end of the agitator, and the agitator, itself, is horizontal, is it? A. Yes, sir.

Q. And it then goes next to the mill,—and when I say mill, I mean next to the grinding part—next to the spouts?

A. Yes.

Q. Now, have you ever observed that the gas rises, and goes up these spouts, into the mill, itself? A. No.

Q. It is turned into the agitator?

A. It is turned into the agitator and the flour runs down.

Q. To the same spouts the flour comes in?

A. Right near it.

Q. So that you have not observed that the gas takes the other direction, and goes up?

A. No, I think not, to any extent.

1695 Mr. Scarritt: Blows through there.

Mr. Butler: Well, they don't have a blast down from the spouts to the mill, do they? That is a summer [sephyr].

Q. Do you say that you brand your straight flour a patent?

A. What is that?

Q. I understood you to say you make 80 per cent, and brand it a patent? A. Yes, sir.

Q. Do you make a straight, and brand it a patent?

A. Yes. We brand 80 per cent patent, and the other a patent.

Q. How long have you been so branding your flour?

A. Always, ever since we started the mill.

Q. What do you brand the clear?

A. We put it in jutes, generally, and brand it "S".

Q. What does that stand for?

A. That is just the designation.

Q. Just the way of marking the sack?

A. Yes, in shipping. We do not call it anything, to the bakers, or—

Q. Are you interested in the Alsop process, in any way?

A. No, sir.

Q. You just bought your machine from them, and that is the end of it? A. Yes, sir.

Q. No royalty business, or anything like that?

A. No, sir.

Q. Are you a contributor to the defense of this case?

A. Yes, sir.

Q. Did you attend the miller's convention, yesterday?

A. I do not know that I am, to this case, but we paid in some money to the Association.

Q. You have no interest in this mill, whose flour was seized?

A. No, sir.

Q. And the money that you have been contributing, in a general way, is used to defend this flour that is seized?

A. Yes, sir, I suppose it is.

Q. Did you attend the millers' convention yesterday?

A. Yes, sir.

1696 Q. Did you take part in its proceeding?

A. I just came there.

Q. Did you make any speeches for bleaching, yesterday?

A. No, sir.

Q. Is yellowberry a more desirable wheat than the Turkey?

A. No, sir.

Q. Is it less desirable? A. Yes, sir.

Q. Worth less, too, isn't it?

A. Worth less in the market.

Q. It is an inferior wheat, isn't it?

A. Supposed to be, yes, sir.

Q. Getting rid of the yellow berry is considered a problem, is it not? A. Yes, sir.

Q. It seems to be a disease of the wheat, doesn't it?

A. I don't know that it is. Some ground will produce yellowberry, when next year it may, out of the same wheat, grow Turkey.

Mr. Scarritt: All from the same seed, I understand?

A. Yes.

Mr. Butler: We do not claim anything about that.

Q. But, strangely enough, some of the heads, and some parts of the same head, a part of the same head sort of blights in?

A. Yes.

Q. Was it formerly called a blighting?

A. No, I do not think so.

Q. But it looks like the wheat that is not harvested timely enough, or something, doesn't it?

A. No, it is usually a very plump wheat, and a heavy wheat, and it has a yellow cast.

Mr. Scarritt: Good quality, isn't it?

A. Good quality, too.

By Mr. Butler:

Q. Well, now, let me see about that. Is it just as hard?

A. No, it ain't as hard.

Q. It is a soft wheat? A. A little softer.

Q. By comparison with the Turkey wheat, among which it grows, it is softer? A. A little softer, I think.

1697 Q. And it makes a yellower flour? A. Yes.

Q. Now, that softer, yellow wheat flour, may be bleached by this Alsop process, so as to look very near like, but not just the same, as flour made from the Turkey wheat?

A. Yes, sir.

Q. That is true, isn't it?

A. Oh, it won't make as strong a flour as Turkey wheat.

Q. No, but it will look like the Turkey wheat flour, but it never will be as strong, or as good a flour as the Turkey wheat flour, and, wheat containing 30 per cent, [of] 25 per cent of this yellowberry, never will, bleaching or no bleaching, make as good a flour as the Turkey wheat that has not yellowberry in it, will it? A. No, sir.

Q. But, by the bleaching, you can make it look as good, can't you? A. Not quite; pretty near.

Q. Yes, but you know that it would take a genius in the business, to tell one from the other, almost, wouldn't it?

A. Yes, sir.

Q. And to that extent, Mr. Gerry was deceived, or might have been by the bleaching process?

Mr. Scarritt: We object to that.

Mr. Butler: I will withdraw it.

Q. Then, the inferiority resulting from the presence of the yellowberry, would be, by the bleaching process, concealed?

Mr. Scarritt: I object to that as calling for a conclusion, and invading the province of the jury.

The Court: He may answer that.

Mr. Scarritt: We except.

A. It would be. The yellowberry, or the yellow color, is a defect in the flour.

The Court: That is not the question.

Mr. Butler: He is answering it.

A. Bleaching it, would make it all lighter colored.

Q. So that the evidence of the yellowberry, if it was not bleached, would appear in the flour, in the color of it, wouldn't it?

1698 A. To a certain extent.

Q. The bleaching of it destroys the evidence of that inferior wheat, as the source of that flour, doesn't it?

Mr. Scarritt: Same objection to that.

The Court: He may answer it.

Mr. Scarritt: Claimant excepts.

A. It whitens it to a certain extent.

By Mr. Butler:

Q. And makes it look like the flour, very nearly, so it would take, as you have told me, a genius of an expert to tell the difference—flour made from the same wheat, that did not have yellow berry in it? A. It would make it nearly so.

Q. Practically so in color? A. Yes, sir.

Q. And appearance?

A. Make it a greyish, or ashen white.

Q. So that, in color and appearance, it would look very much like the flour made from wheat free from the yellow berry, wouldn't it?

A. To a certain extent it will, yes, sir.

Q. Does this yellow berry wheat sell for less?

A. A few cents less to the bushel.

Q. It is generally considered by the millers as an inferior wheat to the Turkey wheat, among which it grows, and a part of which it is, apparently? A. Not worth as much money.

Q. And the flour, itself, is yellower, and of an inferior color?

A. Not so strong.

Q. And cannot be made so strong, even by bleaching?

A. You cannot make strength.

Q. Now, when you say it is not as strong, what do you mean—that the dough is not so good?

A. Bakers do not like it as well as they do the Turkey wheat. Now, a good baker,—a large baker that buys flour, he is very particular. He wants all Turkey wheat flour, 1699 and if you go to putting this in, he won't have it. He will turn it down.

Q. Yes, sir, if he knows it? A. He will know it.

[A.] He won't, if it is bleached? A. Yes.

Q. How?

A. He can tell by working it, the amount of dough, and the strength, and so forth.

Q. A large baker, experienced in handling flours, could tell the difference in the dough, regardless of the color?

A. It has not got the strength.

Q. A flour made from the yellow berry, if it is sold as such, and known to be such, will not bring as much as flour made from the Turkey, will it? A. No, sir.

Q. But, if it is bleached, so as to look just the same, and the customer cannot tell the difference, then it may sell for as much money, may it not?

A. Well, not to an expert.

Q. Well, I mean to the ordinary household consumer?

A. To a certain amount, yes, sir. It won't give you the satisfaction. It will not give the satisfaction to the manufacturer that is making it, that all Turkey wheat would.

Q. The flour is inferior? A. It may go and work.

Redirect Examination

By Mr. Elliott:

Q. Do you bleach your clears, and add them to the patent flour?

A. We do not bleach the clear, unless it is a special order, or something, to go somewhere; seldom ever bleach it.

Q. And if you did bleach your clear, and add it to your patent flour, what would happen to the grade of your patent flour? A. We do not do that, never done it in my life.

By Mr. Scarritt:

Q. You put "bleached" on your sacks, too, out in Kansas?

A. Yes, sir.

By Mr. Butler:

Q. Do you, on interstate? A. Only for the state.

1700 By Mr. Scarritt:

Q. Is it "electrically bleached"?

A. Electrically bleached on every sack, in the state.

The Court: Every one you sell in the state?

A. Yes, sir.

The Court: Supposing you sent me the flour to Iowa; would it be marked "bleached"?

A. No, sir.

(Thereupon the court adjourned to ten o'clock A. M. Thursday, July 23, 1910.)

Morning Session.

Kansas City, Missouri, Thursday, June 23, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Lucius E. Sayre, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. Professor, will you give us your full name?

A. Lucius E. Sayre.

Q. And your residence? A. Lawrence, Kansas.

Q. Will you please state your qualifications, Professor, as an expert?

A. In 1866 I graduated at the Philadelphia College of Pharmacy. After graduation I had charge of the laboratory of Frederick Brown, Fifth and Chestnut Streets, Philadelphia.

After that I had charge as manager, chief clerk of the business of Henry C. Blair Sons, Eighth and Walnut Streets, Philadelphia, for ten years.

1701 Q. What was their business?

A. They were dispensing pharmacists. Subsequent to that I went into business at Eighteenth and Market in partnership with Joseph P. Remington, under the firm name of Remington & Sayre, manufacturing pharmaceutical chemicals and dispensers. At that time I was also elected as an instructor in

the Philadelphia College of Pharmacy, and as professor of pharmaceutical chemistry at the Women's Medical College of Philadelphia. Subsequent to that I was called to the deanship of the School of Pharmacy, a duly created school of the University of Kansas. I have been in that position since 1885. During my period as manufacturing chemist I paid considerable attention to the subject of ferments.

Q. Now, let me ask you, state also if you will, Doctor, where you prosecuted your studies, in the chemical lines, I mean?

A. I should have said that at the Philadelphia College of Pharmacy, and subsequently to that, I obtained the degree of B. S. at the University of Michigan, Ann Arbor, and also had the degree of A. M. at the Philadelphia College of Pharmacy.

Q. Are you a member of any of the societies?

A. A member of the American Chemical Society and a member of the American Pharmaceutical Association, and also a member of a number of similar bodies in which I have held important offices, at one time chairman of the scientific section of the American Pharmaceutical Association.

Q. Have you done any research work, Professor Sayre?

A. I have.

Q. Of what kind?

A. I have been engaged in research for a good many years on various subjects, but those which I consider more prominent are the researches, in the first place, loco weed.

Q. Loco weed?

A. Yes, sir, it grows in the western part of Kansas, astragalus—the botanical name of that astragalus mollissimus; it infested the fields of Western Kansas, and I was asked by a member of the Board of Agriculture to investigate that subject it seemed to be killing the cattle out in that portion of the state; I published a number of articles upon that. Then later on, the one following subject that I consider of some prominence is the investigation of the cactus, cactus grandi
1702 florus; the investigation was to ascertain its action upon the heart.

Q. Have you any connection—beg pardon.

A. And further, recently I have received some degree of satisfaction in the fact that I have discovered in one of the southern plants one of the heart sedatives—yellow jasmine is the common name of the drug, gelsimium, a new principle; heretofore the action of the gelsimium has been considered as very vague; I think I have thrown some light upon the subject by having discovered a third principle in which it seems to act physiologically. In a way that explains and also clears up some of the ambiguities that refer to the action of that drug. Now, prominently also I might consider the question of the in-

vestigation of pepsin. I claim to be the discoverer of a form of pepsin which was introduced into Philadelphia as a new form, I supplied the hospitals at the time with pepsin known as the seale pepsin. Now, my right to this discovery was questioned, and it was necessary to take this matter up in the courts which was done, and in ten years' investigation it was found that my claims were as I had made them. Of course my claims were not of a financial character, simply a question of professional priority.

Q. Yes. Now, have you any connection, Professor Sayre, with the Kansas State Board of Health; if so, what is it?

A. I have. I am by the Legislature appointed as a director of drug assaying and drug analysis, which includes also the spices coffee, and other material, which is frequently referred in our laboratory for final decision.

Q. Have you any connection with any state institutions?

A. I am connected with the University of Kansas, and am dean of the School of Pharmacy and also professor of materia medica.

Q. Now, how long have you been in that position?

A. Since 1885.

Q. I will ask you to explain what duties are connected with the department of materia medica, what does that deal with.

A. The department of materia medica is supposed to treat of the nature of medicinal agents, remedial agents, drugs, as we call them, in a general way, they are all classified under the food and drugs law as drugs, their action and use mainly, and hence of course my investigations as I have named it in two of these important medicinal plants.

Q. I hand you a work and ask you to state what it is; and what, if anything, has been your connection with it?

A. This is the Pharmacopoeia of the United States.

Q. What, if anything, has been your connection with that work?

A. I have been connected with the revision of this work for thirty years; that is to say, I was appointed on the revision committee in 1890, again in 1900, and recently in 1910. My name appears here on page 19.

Q. Now, what do you mean by being on the revision committee; what does that committee do?

A. The revision committee has to do especially, in the first place, with the question of admission of drugs and remedial agents of all classes into what is considered as the standard work; the next is to standardize those materials so that they shall be uniform in strength and quality, so that physicians in any part of the country, or in fact it may be in Europe, may obtain drugs of the same strength and the same quality, as for

example, suppose we were to take a common article known as quinine, which is used all over the world, the standard for quinine is set by the Pharmacopoeia, and this revision committee is required to state in understandable terms to the chemists what shall be the quality of this and how to detect any common adulteration or any minor adulteration that may appear in the quinine.

Q. Does that also give the doses for the average?

A. This gives the average dose only.

Q. I will ask you if that is the work which is named in the United States Pure Food and Drugs Act as the standard for drugs?

A. This is one of the works that is named as the standard, yes, sir.

By the Court:

Q. That is the American Pharmacopoeia?

A. Yes, sir, United States Pharmacopoeia.

1704 Q. I mean United States.

Judge Scarritt: United States government.

By Mr. Elliott:

Q. Have you done any special work, Professor Sayre, other than you have mentioned in connection with ferments?

Judge Scarritt: How long has he been on that revision committee?

A. Well, this is my third appointment, understand this is the third appointment, I was first appointed in 1890, and the last appointment was 1910.

Q. My question is have you done any special work other than you have mentioned in connection with ferments?

A. I have.

Q. Please state what.

A. Well, it was necessary in the manufacture of ferments, particularly pepsin, to study the question of the fluctuation in the strength of the ferments, that is, the fermentation activity of the ferments, and the causes of the modification of the action of these ferments; it was necessary to do this on a commercial basis in order that we should get hold of the strongest pepsin and the most uniform pepsin that could be obtained, and of course in that connection it was necessary for me to state those substances which would in any way interfere with the digestive process.

Q. I will ask you if you are familiar, Professor Sayre, with the effect upon flour of bleaching it by the Alsop process?

A. I am.

Q. When did you first do any work in connection with bleached flour, and under what circumstances?

A. My first connection with the investigation of bleached flour was about last October a year, October and November, that was my first connection with it.

Q. And under what circumstances, I asked you?

A. The circumstances were these: One of the millers of the state of Kansas asked me—

Mr. Butler: I think I will object to that as irrelevant.

Q. Don't state what he did or said; just state what—

A. Just state what I did?

Q. No, I mean if any samples were submitted to you, or anything of that kind, don't bring anyone else in.

A. No, very well. Two samples of flour, twenty pounds each, bags, were sent to the laboratory. Now, the question was whether these two flours differed materially so far as their wholesomeness—

Q. Was one of them bleached and one of them unbleached?

A. I was going to say that one of them was labeled "bleached" and the other "unbleached".

Q. Now, did you make a determination to see if not one of them was actually unbleached? A. I did, yes.

Q. And one bleached? A. Yes.

Q. Now, what was the character of the investigation of such flour?

A. The character was to ascertain, in order to ascertain whether these flours, whether the bleached flour particularly, of course, was unwholesome or deleterious.

Q. Now, tell us what you did?

A. Well, in the first place we have—my experiments, I should say, in point of time have gone on from that date, and I could not give you the exact chronological order, just the experiments that were made from day to day.

Q. This particular flour, upon that flour?

A. The principal experiment that I performed upon that first flour was this, first was the submitting of the two flours, say the unbleached flour we will call the controlled flour, and the bleached we will call the test flour, I had bread made from each of these two samples; I partook of this bread myself for some time, and had it served at my own table. I thought that my wife would be a good test; she has a very delicate digestion and very susceptible to any extraneous material, so that, with her consent, I had her to submit to this investigation, and she was unable to decide, as I was not, I was unable to decide—

Mr. Butler: Wait a moment, Professor.

The Court: Yes, sir, that is hearsay and objectionable.

Mr. Butler: We will not object to the experimentation with his wife, I think.

Witness: Beg pardon.

By Mr. Elliott:

Q. State only your own observations.

A. I am much obliged, I did not—

1706 Q. Just state your own observations.

A. My own observation was that I could not distinguish between the two, the two breads, that is the bleached flour bread and the unbleached, except that in the matter of color.

Q. Now, what other investigations, if any, did you make in connection with that flour?

A. I submitted the flour to the process of digestion, and I found that the action of the ferments were the same, so that I could not distinguish between the two flours. May I say that—well, I presume I had better not make any more statements than that; I wanted to carefully go over my ground, and I sought out the mill that was making this flour, and collected samples myself.

Q. All right. Now, this digestion experiment you have spoken of, that was with what digestive agency?

A. The pancreatic.

Q. Just tell us what the pancreatic digestion corresponds to in the human system, so that we can understand.

A. Well, it is the digestion which corresponds to the digestion, of course it would be proper to say, scientists would understand it would correspond to pancreatic digestion—but perhaps—

Q. Where does pancreatic digestion take place in the body?

A. Oh, that takes place in the alimentary tract.

Q. The alimentary track?

A. Yes, sir, yes; there are two. the gastric digestion, the gastric digestion is that of the prolific digestion, that is the digestion of meats and albumen and substances of that sort, but the pancreatic digestion in this case was what we call diasthonic digestion or the digestion of the starch, the main portion of the flour consisting of the starchy substances. Now, may I state that my theory being that the digestion here would be unfair, that if there was an inhibiting action on the part of nitrites, that is to say, that if the digestion of the flour in the pancreatic fluid, which we may say is similar to that, for the present purposes, to that of the saliva, we may say that that will digest the starch, it is converted into soluble starch, first into a soluble dextrin, and finally into the end products, it is a reducing sugar, I would say that this pancreatic digestion would

1707 be unfair, that in case there were any substances, in my opinion, that were detrimental to health, that is to say, there would be a sufficient amount there to interfere and show a retardation in the action of the pancreaden. Now, pancreaden

is a substance which is well known, two solutions of that are made by the United States Pharmacopoeia, a formula is there given, what we call the official solution is made and the starch solutions are tested; the solution of flour, of the unbleached and the bleached, we run parallel, and we could see no difference between the digestibility of the two flours, you understand.

Q. Yes.

A. Under the influence of this pancreatic digestion, that is as to time and as to rapidity.

Q. Do I understand you to say that you had subsequently done some other work with digestion, subsequent to this first investigation you made?

Judge Scarritt: Other experiments with flour.

By Mr. Elliott:

Q. Other experiments with flour. Now, I will ask you what was the next work you did in connection with this subject?

A. Well, the next subject was to test the flour, the two flours together, the same, running parallel experiments, you understand, controlled experiments and test experiments, you will understand what I mean, with saliva, and I found no difference in the digestibility of the flour, of the two flours.

Q. Now, what else, if anything, have you done in connection with this investigation?

A. The next investigation was to ascertain, if possible, the effect of what is known as the nitric re-acting material upon myself.

Q. Now, let me ask you before that, if you done any work to ascertain if this nitrite re-acting material would be in any manner modified by the process of digestion?

A. Yes, I have.

Q. Now, will you please tell us what the nature of that work was?

A. In order to ascertain what was the fate of this nitrite re-acting material in the process of digestion—

Q. Yes, sir.

A. How could I account for this similarity of action of these two, admitting, for example, that there might be, 1708 as it was shown, of course, that there were nitrite re-acting materials in the bleached flour, the natural question was, can this lack of retardation [of] lack of slowness be explained in any way, naturally I had performed in the laboratory, in my presence, in the physiological laboratory, this re-action which I had performed; the flour was put into the digestion as usual.

Q. Now, first, did you have some bleached and unbleached flour?

A. Yes, always I had flour, whether it seemed to be necessary or unnecessary for purpose of satisfaction I would always carry the two along together, but in this case I did not think that the unbleached flour was very necessary, but always carried that along.

Q. All right.

A. But at this point I wanted to reach—I suspected that possibly the nitrite re-acting material was not in any [was] inhibiting the action of the ferments by bringing it down itself, so the process was performed again and again and at different stages of the digestion the nitrite re-agent, the nitrite re-agent was applied ever so often.

Q. Now, I am afraid we are not getting this in detail sufficiently. Now, first tell us what you did with that bleached flour, if you will, Professor.

A. I submitted this—

Q. What was the nature of your experiment, just in a general way?

A. Well, I submitted the bleached flour to the action of the pancreaden.

Q. Pancreaden?

A. Yes, the digestive experiment, solution of pancreaden.

Q. Now, you can proceed.

A. Now, then, every few minutes portions of the flour solution in the process of digestion was taken out and tested for nitrites or nitrite re-acting material, you understand that?

Q. Yes, sir. Now, just let me see if I do—well, go ahead.

A. Now, then, after fifteen minutes the nitrite re-acting material in one case disappeared, but it did not disappear that suddenly in all cases. We found that in some cases that it disappeared very rapidly in the peptic digestion, I should
1709 have said that I had peptic digestion going along with the pancreatic digestion, sometimes it disappeared more rapidly in the peptic digestion and sometimes more rapidly in the pancreatic digestion. Now, the limit, the ultimate limit at which nitrite re-acting material disappeared was an hour and a half in the case of the pancreatic and the minimum time was fifteen minutes. Now, of course, I controlled these experiments by an Oswald thermostat and the water bath which is arranged so as to have circulation constantly kept up, and had the conditions uniform as far as they could possibly be made.

Q. Now, just let me see if I get that, Doctor. As I understand it you have two receptacles? A. Yes, sir.

Q. And you have got a pepsin solution in one and a pancreatic solution in the other, is that correct?

A. Yes, that one is bleached flour and one—both are bleached flour, one is pepsin and the other is pancreatic.

Q. In two separate receptacles?

A. In this case—well, we ran the unbleached flour, that had no nitrites in it anyway.

Q. Now, dealing with the bleached flour. A. Yes.

Q. As I understand it, you put in this receptacle containing the pancreaden some mixture of water solution, was it, or bleached flour, or just the raw flour?

A. A solution of the—

Q. Of flour? A. Of the flour, yes, sir.

Q. You put that in one? A. Yes, sir.

Q. Then you put a solution?

A. A solution of the flour in the other.

Q. And the pancreaden also?

A. Yes of the same strength.

Q. Here is the point, in determining whether that nitrite disappeared, as I understand it, you took from time to time some of this liquid out? A. Yes, yes.

Q. And test it? A. Yes, sir.

Q. And so with each one?

A. Yes, sir, yes, sir.

Q. And doing that, as I understand it, after a certain length of time you found a liquid you took out of here, it does not respond to the Griess re-agent, is that correct?

A. That is the idea, that is the way the test was performed; it could have been performed in that way, 1710 but I dictated that it should be performed in that way, and that is the way it was performed.

Q. Now, you did the same thing with the unbleached flour?

A. Yes.

By Mr. Butler:

Q. I want to ask did you do these experiments or dictate them?

A. I did the experiments myself, my associate Professor Emerson also did the experiments, so as to—we always verify as we do in all work, we endeavor to get as many sources of information as we possibly can, our training in the pharmacopoeial revision committee teaches us that no one experiment or one man's experiment is quite sufficient, it is necessary that our experiments shall be done by other person.

Q. Yes.

A. Now, Mr. Emerson is my associate and is director of the laboratory, of course it is my own custom to perform experiments in my own laboratory, and at the same time have the experiments performed in the other laboratory, but I do not wish to here testify as to Mr. Emerson's result; he is here and can testify for himself.

Q. But I will ask you to state briefly what these experiments, in your opinion, demonstrated, that you just testified to?

Mr. Butler: I think I will object to that.

By Mr. Elliott:

Q. What conclusion did you draw from these experiments, then?

A. My conclusion was that the nitrites or that nitrite re-acting material was disintegrated or broken down, the combination, whatever that was, was broken down, so as to make the nitrite re-acting material disappear so far as the chemical tests and observations were concerned.

Q. Now, assuming, Professor Sayre, that flour bleached by the Alsop process containing 1.1 parts of nitrite re-acting material is made into bread, and assuming further that that bread contains, well, we will say in round numbers one part per million of such nitrite re-acting material, and that bread is consumed by a person, now, I will ask you what bearing, if any, do these experiments you have made have on the question of what occurs in the body when such bread is eaten?

1711 A. My observation convinces me that those nitrites even in that quantity, 1.8 per million, are broken down and become inert, so to speak, and absolutely inactive. I am not prepared to say that really digestive substances may be formed, but from my observation or from my reading it is possible for certain compounds to be changed by the breaking down of nitrites into new substances which are not foreign to the digestion process.

Q. Now, as a result of these experiments I will ask you your opinion—

A. May I qualify the statement that I have made in regard to[—]? You are speaking of bread, and I am afraid that perhaps we are becoming confused in speaking of bread and flour, you understand. Now, I should have answered your question in this way, that in my opinion the flour which is assumed to contain, for example, 1.8 per million, if it passes through the process of baking, as I have performed the process of baking, through the fungus ferment, that is the yeast, the bacteria ferment, that is the salt rising process, and also the baking powder process, making biscuits, my experience in these leads me to the conviction that in the bread as it is ingested and as it is digested, passing through the process of digestion, my opinion is that the amount of nitrites, supposing they are nitrites, or at least the nitrite re-acting material, the amount is negligible so far as the digestion is concerned, when it is digested out of bread.

By Judge Scarritt:

Q. What do you mean by negligible?

A. Negligible, that is, can be absolutely not considered as active or as practical, at any rate.

Q. Harmless? A. Harmless, yes.

By Mr. Elliott:

Q. Now, as a result of these experiments, Professor Sayre, I will ask you your opinion under the assumption of the last question, as to the possibility of nitrite re-acting material or nitrites there in this bread getting into the blood circulation?

A. I further tried to satisfy myself in regard to that; I had two volunteers with me.

Q. Yes, I want the detail on that test later, but I am just simply asking your opinion from these experiments.

A. Yes.

Q. As to what, in your judgment, would be the possibility of such nitrite re-acting material from this bread, if it is there, getting into the blood circulation? A. No possibility.

Q. Now, have you any knowledge of the use of nitrite as a medicine? A. Yes, sir.

Q. Have you made any experiments to ascertain the effect of nitrites on the blood when taken internally? A. I have.

Q. Please state what you have done.

A. That was necessary to further investigate this subject, so I allowed myself, as I did in the case of loco—

Q. Professor, you better turn a little so the gentlemen can hear.

A. In the case of loco I submitted—was subject to the poisoning by loco, so I submitted myself to the poison of nitrite. I took two days in succession nitrites, the nitrite of sodium on the first day. I took three grains in one dose in the morning about nine thirty, and then I took a second dose of three grains two hours afterwards.

By Judge Scarritt:

Q. The same day?

A. The same day, and allowed that to incubate, so to speak, or pass into the circulation with the heat of the body, and so forth, and with the spectroscope in the laboratory, why, I tested for the methemoglobin, and I could find no evidence of the appearance of methemoglobin, and on the following day I took the second dose and repeated that and with the same results, absolutely negative results, I could not get any methemoglobin.

Q. Did you take the same doses on the second day?

A. Yes, sir, the same doses on the second day, six grains in all, two hours apart. Then I got my helpers to work and administered to them—of course, they willingly, seeing that I

was safe, were willing to go one further, and they took on the first day three grains every hour until nine grains had been taken, two persons, Professor Emerson, our physiological chemist, and a Mr. Jones, who is a chemical student I had them to take three grains an hour apart, making nine 1713 grains, that was on the first and second day, we allowed them to remain in the laboratory and to test the blood at various periods after that, and no appearance of methemoglobin was made after allowing sufficient time for the development of this methemoglobin.

Q. I did not quite understand, Professor, of these gentlemen you have named, did you give them nine grains on each of two days? A. Each of two days.

Q. On each of two days? A. Each of two days.

By Judge Scarritt:

Q. Following days?

A. Following days, one following the other.

By Mr. Elliott:

Q. Now, in examining your blood and the blood of these gentlemen with the spectroscope, you simply obtained some blood from your body, did you?

A. Just took out from underneath that point, right underneath the finger.

Q. Under the finger nail?

A. Just at this point (indicating).

Q. Above the finger nail?

A. Just above the finger nail, there, I don't know whether I can show you.

Q. Well, the point was you extracted some blood from yourself?

A. After first washing the finger with alcohol and water, getting it perfectly clean, aseptic, and then puncturing and taking up the blood.

Q. That is all.

Cross-Examination

By Mr. Butler:

Q. Since this trial has commenced—is it Doctor Sayre or Professor Sayre? A. Professor Sayre, if you please.

Q. Professor Sayre. Since this trial has commenced, Professor Sayre, I have been thrown into the greatest possible mental confusion about the various professions that I encountered relating to the subject, and I therefore desire to ask you some questions as to the limitations of the various professions and specialties and sciences. Now, I gather from your testimony—let me see, how old are you? A. Sixty-two.

Q. And you were a graduate of a college of pharmacy?

A. Yes, sir.

1714 Q. Then you worked in a laboratory? A. Yes, sir.

Q. That is a drug store or pharmacy?

A. And I was with Professor Bridges, working with him, and also with Professor Maish.

Q. Then you were the chief clerk in a—is that wholesale or retail? A. That is a retail store, yes.

Q. Retail drug store?

A. In the laboratory, of course, we make chemicals.

Q. Then you were in the drug business a while?

A. Yes, sir.

Q. Remington and yourself? A. Yes.

Q. Then you were an instructor in the college of pharmacy in the Women's Medical College at Philadelphia?

A. Yes, sir, that is right.

Q. Then you became in 1885, now twenty-five years ago, the dean of the college of pharmacy or the school of pharmacy in the University of Kansas? A. Yes, sir.

Q. You paid some attention to ferments. A. Yes, sir.

Q. You made some research on loco weed that kills cattle?

A. Yes.

Q. You discovered the yellow jasmine in some plant in the South?

A. No, I did not. I discovered one of the new principles in that plant, of course.

Q. The new principle you discovered pepsin and established your claim as a discoverer after ten years of litigation.

A. I discovered gelsimium.

Q. You took a bachelor of science degree in the University of Michigan? A. Yes, sir.

Q. In what year? A. 1894.

Q. 1894—at what age?

A. Well, you can calculate that, I don't—

Q. What year were you born? A. I was born in 1847.

Q. '47 from '94 leaves 47? A. Yes.

Q. What is the average age of bachelor of science in the University of Kansas? A. What is the average age?

Q. Yes. A. Of a Bachelor of Science?

1715 Q. Yes. A. I couldn't tell you that.

Q. Along about twenty-one or two? A. Oh, no.

Q. Don't you confer the ordinary degree of Bachelor of Art and Bachelor of Science; what I am trying to get, this degree of Bachelor of Science is one conferred by the colleges and universities of the country generally? A. Yes.

Q. And usually given after four years of school, they take them in the freshman class?

A. Oh, no, you are mistaken, that degree that you are thinking about, you are thinking of the Honorary Degree of—

Q. No, I am not thinking of an honorary degree at all.

- A. Oh, yes, I understand you—beg pardon.
- Q. I confer a few of these every year myself in Minnesota.
- A. Yes, sir, I understand.
- Q. And they get some about twenty-two years old, do you say?
- A. Yes, that is right.
- Q. And you got this when you were forty-seven?
- A. Yes.
- Q. How long were you at the University of Michigan?
- A. I was not there any great length of time; my work was largely—
- Q. Was it an honorary degree?
- A. No, it was in connection with some work that I did in chemistry with Professor Prescott.
- Q. How long were you there?
- A. Well, I was engaged in that work for a year.
- Q. How long were you at Michigan?
- A. Oh, I was not there but a short time.
- Q. How long?
- A. Oh, about in all, I don't suppose I was over there about two or three months, two months.
- Q. In the year 1904?
- A. Yes, I was consulting with Professor Prescott all the time.
- Q. And you took the master's degree when?
- A. Master's degree at Philadelphia College of Pharmacy.
- Q. That was for your scientific researches?
- A. Yes, sir, afterwards, I, of course, was doing work with the Philadelphia college of Pharmacy in connection with our laboratory.
- 1716 Q. Now, did you ever practice medicine?
- A. I never practiced medicine.
- Q. You are not a medical doctor?
- A. I read medicine with Dr. Oak Wright.
- Q. Are you a medical doctor? A. Yes, sir.
- Q. Were you ever licensed or qualified to practice medicine under the laws of any state? A. No, sir, but—
- Q. Are you a specialist in anatomy?

Counsel for claimant objected and asked that the witness be permitted to complete his answer.

Mr. Butler: I asked him if he was ever licensed to practice medicine in any state; he said no; now, that is the end of it; of course if he goes on and begins to tell of everything else in the world we never will get through; I only want to know whether he was a physician or not.

A. No, I am not a physician.

Judge Scarritt: Now, go ahead, inquire all you want to.

By Mr. Butler:

Q. Now, is there anything that you want to add or explain or qualify to that answer? A. No.

Q. Are you a surgeon? A. No, sir.

Q. Are you a physiological chemist?

A. I am not a physiological chemist in the sense in which that term is used now.

Q. Are you a toxicologist? A. No, sir.

Q. Are you an analyst? A. Yes, sir.

Q. Organic chemistry? A. Yes, general analysis.

Q. Where did you take that instruction?

A. Why I took that instruction up very largely, the foundation of that instruction was in the Philadelphia College of Pharmacy, and in connection with my work with the revision committee of the United States Pharmacopoeia, and I suppose the point might be made that my experience of forty years is the best school that I have been at.

Q. That is what I think myself. Now, in the Pharmacopoeia, how many members from each state; you are a member from Kansas on that committee? A. Yes, sir.

1717 Q. How many members from each state?

A. They differ, some states have two, some one.

Q. What is the total membership?

A. Twenty-five; There is fifty now.

Q. There is forty-five states, isn't there?

A. Well, there is not one from each state, no, but shall I tell you how the committee is—

Q. No, I want to get about how many there are?

A. There are twenty-five from 1890 to 1910 there were twenty-five members on the revision committee, and now from 1910 to 1920 there will be fifty members of this revision committee.

Q. Well, their names are all here?

A. The names of the revision committee for 1900 are there, but the present revision committee—

Q. You pointed out your name here? A. Yes, sir.

Q. I find Andrew S. Mitchell here, in here too, this gentleman over here, so we have two members in the courtroom now, haven't we? A. Dr. Haynes is another one.

Mr. Butler: I will just submit that to the jury so they can look at the list from the various states.

Q. You say there is twenty-five of them?

A. Twenty-five.

Mr. Butler: So they can see who they are.

Mr. Helm: You have got three of them right here.

Q. Now, poisons have something to do with this case so far. Is flour poison? A. Is flour?

Q. Yes, unbleached flour? A. No, sir.

By the Court:

Q. What? A. Unbleached flour, is it a poison?

By Mr. Butler:

Q. Yes. A. No, sir.

Mr. Elliott: The gentleman stated he is not a toxicologist.

Mr. Butler: I know, but he has had forty years' experience with drugs.

Witness: Well, your question was whether unbleached flour was a poison.

Q. That is just my question. It is not a poison, is it?

A. Well, unbleached flour as we—I don't mean to say that unbleached flour that would be in a state of putrefaction—

1718 Q. No, I mean nice flour. A. Certainly.

Q. Is bleached flour a poison?

A. Is bleached flour a poison?

Q. Yes, sir, by the Alsop process, I mean wholesome flour that is bleached, I don't mean any rotten flour. There are no catches in this question. A. No, sir.

Q. Is table salt a poison? A. Is table salt a poison?

The Court: Yes, sir.

A. It depends upon the quantity that is taken.

By Mr. Butler:

Q. Can you mention a poison?

A. Can I mention a poison?

Q. Or any substance that is a poison. A. Yes, sir.

Q. Do it.

A. Strychnine would be poisonous in certain doses.

Q. Well, I want a poison without any qualification; is there any that is a poison; strychnine and salt are not the same, are they? A. Why, everything depends on quantity.

Q. Everything, then is flour a poison?

A. Well, those articles which are poison are dependent upon the quantity, so regarded as—

Q. Is flour a poison?

A. Not regarded as a poison; it is a food.

Q. It is a food? A. Yes, sir.

Q. It is perfectly absurd for any man to claim, any professional gentleman to claim that wholesome wheat flour is a poison?

Judge Scarritt: We object to that; it is a mere argument.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. Unbleached flour is not a poison, that is a question I have answered that, I believe.

Q. Now, then, you are a pure food officer yourself?

A. No, sir.

Q. You are connected with the Board of Health?

A. Board of Health, in connection with the operation of the pure food and drugs law, and have the charge of the drugs laboratory as director of it and an analyst of that department, have four men that I direct.

1719 Q. You have charge of the execution of the laws of Kansas, pure food laws?

A. I am on the advisory board, simply.

Q. Can foods be adulterated, in your opinion, by the addition of poisons?

A. Well, do you mean to say whether unbleached flour, for example—

Q. No, I am not talking about flour at all, I am asking a general question, because—I am doing it for this reason, Professor Sayre unless you and I can come to an understanding as to the meaning of some terms there is no use in our talking, because we cannot get along at all, unless we can agree on some simple facts that are commonly understood between the members of the human family, that food is not a poison?

A. Oh, yes, food.

Q. And that strychnine and prussic acid and corrosive sublimate are? A. Yes.

Q. Unless we can agree about that it would be—

A. That is true, there will be no disagreement, of course, we understand that, no disagreement on that at all.

Q. Now, then, we have agreed that certain substances are by nature poisonous, and certain substances are by nature non-poisonous; that is agreed, is it not? A. Well.

By the Court:

Q. Answer audibly.

A. I merely nod my head as if I were understanding him; I am not answering his question at all.

By the Court:

Q. All right.

A. I am simply trying to comprehend his question. Now, the question he asked me, I want to see if we agree as to poisons.

Mr. Butler: No, let us begin again and see if we can understand each other.

The Court: That is a fair question.

Mr. Butler: I am going to be perfectly fair with Professor Sayre, that he may understand the term, so that we may talk about it—

Witness: Certainly.

Mr. Butler: Fairly, and incidentally I will ask you if
1720 it is true that certain substances such as wholesome foods may accurately be said to be not poisonous, and is it true that there are substances which are by their nature poisonous substances?

A. Well, I want to qualify that, if you please.

Q. All right.

A. That the latter substances are poisonous in certain quantities.

By the Court:

Q. In what?

A. In certain quantities, that is the point.

By Mr. Butler:

Q. Then there are certain substances which are not poisonous at all? A. Yes, sir.

Q. Don't produce poisonous action? A. Yes, sir.

Q. Then there are certain other substances that do produce poisonous action? A. In certain quantities.

Q. In certain quantities? A. Yes, sir.

Q. The degree of action depending upon the quantity?

A. Yes, sir.

Q. But the nature of the substance is poisonous and poisonous substances? A. If taken in a quantity,—

Q. But I am now speaking of the nature of the substance, it is by nature a poison, corrosive sublimate is a poison to humans?

A. I am afraid of misleading, I am afraid of misleading by saying yes or no because it is a question of quantity there.

Q. Oh, yes, all right, all right. A. I want to tell the truth as far as I know it.

Q. Yes, so then as a health commissioner we will say that the rule of your department is that poison shall not be added to food, we'll say that is the rule? A. That is all right.

Q. Now, you are an expert to tell the laymen whether or not poisons have been added to food. Now, we have here our cantaloup for breakfast, we will take an ordinary breakfast.

A. Yes, sir.

Q. Some prussic acid in it, not enough to produce a result to show a symptom; we have some coffee, some prussic acid in it, not enough to show a symptom; some shredded wheat biscuit, some prussic acid in it, but not enough to show a symptom, some bacon, some prussic acid in it, but not enough to show a symptom? A. Yes.

1721 Q. That is a pretty good breakfast—some eggs preserved with prussic acid, but not enough to show a symptom. A. Oh, that is impossible.

Q. Well, we'll say prussic acid in the eggs, then?

A. Well, you would not preserve the eggs with prussic acid.

Q. I don't know, I get confused.

The Court: We heard a good deal yesterday about eggs.

Judge Scarritt: Not about prussic acid in it.

By Mr. Butler:

Q. Well, I am not stating to him, so that we will assume that in no one of these is there enough, no one of these, I have mentioned five substances, for breakfast, customary foods for breakfast? A. Yes.

Judge Scarritt: Wait a minute, Doctor. Don't answer the question until I have an opportunity to object.

Q. But in no one of these there is enough to be characterized as a poison, or to show any poisonous observable effect. Now, then, we have under inquiry the subject of the propriety of the sellers of these things of adding a quantity to each. Now, with respect to the cantaloup, you could conscientiously swear, the quantity being told, and you being familiar with the action, that there was no poison added to that, couldn't you?

Judge Scarritt: We object to this question because incompetent, irrelevant and immaterial, and as having nothing to do with the issues in this case, it does not relate to any testimony in the case and is made for the purpose of misleading and confusing the witness and prejudicing the jury against the claimant in this case.

The Court: Objection overruled.

To which ruling of the court claimant then and there duly excepted.

The Court: You may answer the question.

Q. Now, will you repeat that question, I would like to, as I understand him—

The Court: No, answer the question; it may be read to you if you don't understand it.

A. Well, I would say you asked me the question there—
(Question read by the reporter).

A. You assume they have been added, don't make any difference whether they have been added or not?

Q. Yes, sir, assume that.

Judge Scarritt: Add to that objection that it is purely argumentative.

(Question read by the reporter.)

A. I will say yes, if we know they have been added, of course.

Q. You could swear that there was no added poison?

A. Oh, no.

Q. You would swear that there was an added poison?

A. Yes, we assume that.

Q. And you would swear to that no matter how minute the quantity?

A. Certainly, if it is assumed that it has been added, of course.

Judge Scarritt: He is talking about cantaloup.

A. I am talking about all of these things, if we start out with the assumption that these things have been added, if we start out with the assumption—

Q. Now, so that you will say that if there be prussic acid added to the cantaloup? A. Yes, sir.

Q. That the poison has been added even though the quantity of the prussic acid be so minute that no physiological effect can be observed, traced, or in any manner discovered, won't you? A. I would, yes.

Q. And so with respect to the coffee, the shredded wheat, the bacon and the eggs? A. Yes, sir.

The Court: Answer.

A. Yes, sir.

Q. You will say even though the quantity be infinitesimal, unweighable, if this exists, and you are asked to assume that it does, then you would say that a poison has been added to those foods?

A. Even a trace of poison hardly discoverable, if it has been added, of course would be a violation of the law.

Q. Now, then, say if it were strychnine your answers would be the same? A. Yes, sir.

1723 Q. What is that? A. Yes, sir.

Q. So if it were corrosive sublimate your answers would be the same? A. Yes, sir.

Q. And so if it were any poisonous substance, that is, any substance which might produce a poisonous effect observable, given or developed in appropriate quantities? A. No, sir.

Q. You would not? A. No, sir.

Q. So poison may be added which will justify you in swearing that no poison has been added?

A. Well, I don't understand that question.

Q. I thought you did not. So what you have said with respect to strychnine, prussic acid, corrosive sublimate—

A. Yes.

Q. You would say with respect to any poison?

A. No, no, I would not.

Q. What poisons would you make exception to?

A. Well, there is where we are coming to a misunderstanding at the very beginning with regard to the question of poisoning?

Q. Yes.

A. I say a question of poison is the question of quantity and in quantity I have reference there to the nature of the poison, for example, we may say that many of the innocent substances, as for example, vinegar could not be taken in the form of acetic acid, yet it could be added in a quantity that will be entirely innocent, and the same way with citric acid, and with many of those substances which would be in a concentrated form a poison, but in very minute quantities would not be. Now, if you apply that question to all persons, if the question is applied to corrosive sublimate and hydrocyanic acid, and so on, why of course you are leading into another field entirely, which deserves a separate consideration, in my opinion. I may be wrong about that.

Q. In your experience in the world and professional experiences, in common salt, common table salt, understood to be a poison in the ordinary use, in the English language, or vinegar? A. No, sir.

Q. Whisky is not either, is it? A. No.

Q. But we know it may produce injury? A. Yes.

Q. And may produce effect in one of these? A. Yes.

Q. Just poisonous in its character? A. Yes.

1724 Q. But that depends upon the excess of quantity?

A. Yes, sir, that is true.

Q. The effusion of the substance? A. That is right.

Q. But salt is wholesome, isn't it?

A. Yes, in proper quantities, of course.

Q. It is necessary to life?

A. Certainly, so is hydrochloric acid, is necessary, but it is a very strong poison, and its constituents are the same.

Q. Are nitrites necessary to human life?

A. I am not sufficiently conversant with the processes of life itself to say; as I have said before, the fate of nitrites, I have tried my best to ascertain the fate of nitrites.

Q. And you can't tell us?

A. And it is a question, and we are trying to get at the truth, so far as nitrites are concerned.

Q. I have no doubt. A. Yes.

Q. So you don't want to say about that; you have not qualified about that?

A. I could give you a whole lot of material relating to this, but it would not be just material to the case.

Q. I will not trouble you with it any further, Doctor, because I think you can. But loco weed is poison?

A. Yes,—well, no, sir.

Q. You told us it was?

A. Yes, sir, and no, sir, that is one of the strange things about loco; in some styles it is poisonous and in other styles it is not.

Q. I never saw that, but does that make the cattle crazy?

A. Yes, sir.

Q. Did you eat some of that?

A. I did. I guess that accounts for my demented condition this morning.

Q. Did it have any perceptible effect upon you?

A. It did not, so far as I know, perhaps.

Q. But it is well known to be a very dangerous thing to cattle?

A. Yes, sir, that is in some localities. I could give you a long lecture on loco that would last the court the rest of the term.

Q. I hope that won't become necessary in this matter. Now, your examination of bleached flour was for the purpose of determining what effect, if any, nitrite re-acting material had upon digestion? A. Yes, sir, yes.

Q. Was there nitrite re-acting material in the unbleached flour that you compared the bleached flour with?

A. No, sir.

Q. Well, isn't there nitrite re-acting material just as much in the unbleached flour as there is in the bleached flour?

A. It depends on circumstances again.

Q. Well, did you get some fresh flour from the mill that had not had time to take on these nitrites from the air that Professor Wesener told us about?

A. I don't know, except that I supposed we received—

Q. Well, you tested it for nitrites, didn't you?

A. Yes, sir, yes, sir.

Q. Now, was it new flour? A. New flour, yes, sir.

Q. It was new flour, I mean recently milled?

A. Yes, recently milled.

Q. Not naturally aged flour? A. No.

Q. So your experiments compared the bleached flour with the unbleached flour which had not been naturally aged?

A. Well, my experiments was with two flours, one labeled "bleached"—

Q. I don't care for the label; I want to get one particular point, now, and I want to get the fact if you know it; if not we'll have to go on without it. I want to find out this—you were not here yesterday, or for a day or two, were you, lately? A. No.

Q. The millers and bakers say that flour improves with natural aging some, wouldn't it?

A. Well, I have heard that.

Q. All of them say that it gets better, makes better bread, and changes chemically finer and nicer, and Professor Wesener told us that it takes on nitrites very nicely, the original nitrites, now, you got some bleached flour that had nitrites added by the bleaching, that was one kind, wasn't it?

A. I had a bleached flour that gave the nitrite re-action, yes.

Q. Now, you had an unbleached flour that did not give it?

A. I had another flour which did not give the nitrite re-action.

1726 Q. You understood it to be a freshly milled flour?

A. Well, I know in one case it was freshly milled because I collected it myself.

Q. Well, that is what I am getting at. Now, then, by the most careful examination you couldn't tell any difference in digestion? A. In digestion, yes, sir.

Q. Is that true? A. Yes, sir.

Q. So that if it is true that natural aging improves the digestibility of flour, and that bleaching is the same as natural aging, then the bleached flour ought to digest better, oughtn't it, because this is fresh flour, and therefore inferior to the bleached?

A. I can't say what ought to be and what ought not to be; I am only here to testify to facts, as my results are the only thing.

Q. I am not asking you about the result. Assuming the fact to be that flour was naturally aged, improves as to digestion? A. Yes.

Q. And assume that Professor Wesener is right that bleaching is natural aging, is the equivalent of natural aging, in the quality of flour—? A. Yes.

Q. And color too? A. Yes.

Q. Now, if those two things are true, and you take a freshly milled flour of the same kind of a bleached flour, the bleached flour ought to have digested first and better, ought it not?

A. I have not considered that.

Q. Well, consider it now.

A. Well, I will have to go into the laboratory and study that out.

Q. Well, we will not pause for that.

A. I am only here to testify to my results.

Q. Do nitrites produce methemoglobin in the blood?

A. I don't know, I have not experience from personal observation in the experiments I have made.

Q. Did you ever see methemoglobin?

A. I did, well, I have seen it through the spectroscope.

Q. Taken from the blood of a human being?

A. Yes, sir, I have seen it taken from the blood of a human being.

Q. When and where?

A. Oh, some years ago I saw the effects of methemoglobin.

1727 The Court: He is not asking you about the effects; he asked when you saw it.

A. Yes.

By Mr. Butler:

Q. When and where? A. I could not give the exact date.

Q. Where? A. In Ohio, a child died.

Q. Now, Doctor, I am not going into that, but where in Ohio? A. London, Ohio.

Q. Produced by nitrites?

A. Not nitrites, by nitrite material.

Q. Produced by nitrite re-acting material, is that the only methemoglobin you have ever seen? A. Well—

Q. In the spectroscope? A. Well, the spectroscope—

By Mr. Lyons:

Q. We can't hear you, Professor Sayre, at all, speak up.

A. No, I have not seen methemoglobin as a product, you mean in the blood outside, in a test tube for example?

Q. Well, I don't know where it could be seen at all, well, where? A. In a test tube.

Q. Yes, a representation made like the blood of an ox, we had here the other day, we have all seen that, that is another group, by the effect of nitrite of sodium, so that the only case that you ever did see methemoglobin was the case of this child in Ohio? A. Yes.

Q. And that was produced by nitrite re-acting material?

A. Yes, that was the substance.

The Court: You have anything to say, Professor, let's get along?

A. No, that is all.

Q. Now, so that there may be no misunderstanding again about our definitions, because that is where our disagreement all comes, when this nitrite re-acting material is present it will give the characteristic color on the application of the Griess test, the Griess-Ilosvay test? A. Yes, sir.

Q. So that is the thing we have been talking about there?

A. Yes, sir.

1728 Q. That is the color that was shown in the work of Professor Hulett here when he pumped it out of the bread and tested it here before the jury?

A. I didn't see that.

Q. You didn't see that test before the jury? A. No, sir.

Q. Well, didn't you see it in the color in the tube here in the courtroom? A. No, sir, I was not present.

Q. Now, there are certain—by the way, is nitric acid a poison? A. Yes, in a concentrated form.

Q. Is nitrous acid a poison?

A. In concentrated form, yes, sir.

Q. N2O is a poison? A. In concentrated form it is.

Q. NO23 is a poison? A. In concentrated form.

Q. N2O4 a poison?

A. In concentrated form, all these substances.

Q. Yes, sir, go on.

A. All these substances if taken in quantity, in certain quantities, they will have a poisonous effect.

Q. NO2, HNO2, HNO3? A. Yes.

Q. N2O3, are these substances poisonous by nature?

A. In quantity in concentrated form.

Q. Nothing is poison except in quantity?

A. Yes, sir, that is right.

Q. But these are not harmless like flour, they don't fall in the flour class, but they fall in the poison group, don't they?

A. Yes.

Q. All fall in the poison group?

A. That is to say in concentrated form.

Q. No human being can tell how much poison of any given character it will take to kill another human being, can he?

A. Within certain limits.

Q. Oh, yes, but you couldn't tell exactly how much will break the thread of life?

A. It depends upon the body weight, the condition of the individual, and there are a great many.

Q. It depends on resistance, you mean?

A. Yes, sir, depends on resistance.

Q. You couldn't tell how much strychnine it will take to kill me? A. No.

Q. Just how much will be enough? A. No.

1729 Q. But you know that it will do it?

A. I know that a certain quantity will do it.

Q. You know that prussic acid will do it?

A. A certain quantity of prussic acid will do it.

Q. And very little? A. Beg pardon?

Q. And very little?

A. Well, you can take two minims or two drops.

Q. Well, that is a very little, isn't it?

A. Well, you can take two drops.

Q. That is very little, isn't it? A. That is little, yes.

Q. I want to know how much will kill me.

A. Oh, that is a question I cannot decide.

Q. But a very small amount will kill me?

A. Well, that is very indefinite, I can't say what a small amount is to you or a small amount is to me; now, we would disagree as to what a small amount is.

Q. How much prussic acid is considered a poisonous dose?

A. Well, that would depend upon the concentration of the hydrocyanic acid.

Q. Express it any way you see fit.

A. Two per cent hydrocyanic acid I would consider that a teaspoonful of that would kill, be a fatal dose, ordinarily, for the ordinary person.

Q. And the active principle of aconite, how much will kill?

A. Varying amounts, you know the active principle of aconite is a variable body, I can show you aconitin, the test of it is $1/240$ th of a grain, and some $1/60$ th of a grain, so that they are variable, aconitins are not uniform compounds.

Q. Is aconitin a pure body? A. It is an alkaloid.

Q. Is it a pure body?

A. Then we will have to come to an agreement as to what you mean by pure.

Q. Well, let it go. A. It is an alkaloid.

Q. Are there any compounds which will result in flour, which will be produced in flour, by NO_2 , HNO_2 , HNO_3 , or N_2O_3 , which will not respond to the Griess test?

A. Naturally formed in the flour?

Q. Yes.

A. The elements of flour will not produce by itself, the elements of flour itself will not produce that substance NO_2 .

1730 Q. The flour will not make NO_2 or HNO_2 ?

A. That is to say—

Q. That is not what I asked you at all. I ask you if you treat flour with NO_2 , HNO_2 , HNO_3 or N_2O_3 , whether or not you will produce some compound in the flour—

A. If you should treat the flour with those compounds, or any of these compounds, you would have a nitrite re-acting material, is that what you mean?

Q. Yes, sir, that is one step. Now, it will also produce compounds which will not re-act to the Griess test, won't they?

A. The ultimate re-action would be, yes.

Q. Well, I mean it will not re-act directly to the Griess test? A. Yes.

Q. It will produce the nitroso-amin and the nitro diazo compounds and the Zanto-proteic action, won't they?

A. Yes, those are in part compounds, many of them.

Q. And these compounds will not respond to the Griess test, will they?

A. They will break down into single compounds.

Q. I mean they will not respond directly, they can be broken up and so manipulated that you can get the test, isn't that true, chemically manipulated, I mean?

A. Determined, you say, so as to in making the test?

Q. No, but I say the nitroso amin, the nitro amin, the diazo compound cannot be located by the Griess test, can they, if so, how, we want to find them?

A. I am not prepared to answer that question.

Q. Well, you know what the poisonous yellow proteic re-action is? A. Yes, sir.

Q. That flour is poisonous, isn't it, when the zanto re-action has taken place by treatment of the flour with NO_2 , HNO_3 , and HN_2O_3 or any or all of them?

A. I would not like to testify to what that is, because I have not performed any experiments.

Q. Well, I know, but you know in the nature of things, and it is common knowledge, is it not, by every gentleman of cultured education that the zanto-proteic re-action is a poisonous re-action and that the product is poisonous in its nature, that is true, isn't it?

A. It depends on concentration, as I said before.

1731 Q. I know, the concentration, so that it is yellow like sulphur, that is poisonous, isn't it?

A. I would have to experiment with that myself in order to say positively in regard to that; I have performed no experiments with the zanto-proteic flour.

Q. Don't you know any poisons without having taken them yourself?

A. I know poisons certainly by records that are made, yes.

Q. But, now, isn't it the general knowledge on the subject that the yellow re-action on the proteids of flour resulting from the use of HNO_3 , HNO_2 or N_2O_3 , that it is a poisonous substance?

- A. Well, the same answer would be given to that as before.
- Q. You don't know?
- A. It depends on the quantity and dilution.
- Q. Well, I will say take that quantity.
- A. I don't know what there is there.
- Q. In flour treated with nitric acid?
- A. I don't know how much there is there.
- Q. Can you tell whether it is wholesome or not by looking at it?
- A. I couldn't tell anything about it.
- Q. Can you tell whether it is deleterious or not?
- A. Couldn't tell anything about it.
- Q. Can you tell us it is poisonous or not?
- A. Couldn't tell anything about it because I haven't—
- Q. That is all, that ends it. Is it not generally understood that the nitroso-amin and the nitro-amin and the diazo compounds are injurious to the quality of flour when produced therein by nitric acid?
- A. The same question, that is, that depends on quantity.
- Q. Well, is it not generally understood—we will say you get the nitroso-amins produced by nitric acids, the nitro-amins and the diazo compounds, isn't that generally understood to injure the flour, I am not now speaking of poisons, but of the injury to the flour?
- A. Yes, I understand, but I don't believe it is generally understood as being deleterious to the flour.
- Q. Will you express the contrary that it is not?
- A. I won't express any opinion exactly.
- Q. You don't know. Are you familiar with Swedelberg's Work on Pharmacology?
- A. I know of it, I am not familiar with it.
- 1732 Q. Well, isn't he professor at Kaiser Wilhelm University at Strasburg, the greatest living pharmacologist and acknowledged by all to be the greatest pharmacologist who ever lived?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial, and one expert passing on the qualification of another expert.

The Court: He may answer.

- Q. You are not a pharamacologist at all? A. No, sir.
- Q. Now, do you consider nitrite of sodium as food?
- A. Never used as a food.
- Q. What is that? A. Never used as a food.
- Q. Do you consider it a drug?
- A. Nitrite of sodium is a drug, yes, sir.
- Q. So then, if nitrite of sodium is added to flour by the bleaching process drugs are added to the flour?

A. Nitrite of sodium, if nitrite of sodium is added to the flour.

Q. A drug is added to the flour?

A. A drug is added to the flour.

Q. Well, so much for that. There is some sodium in wheat flour, isn't there?

A. Yes, sir, sodium is contained in flour, as potassium and magnesium and alkali, the alkalis are present in flour.

Q. Is nitrite of potassium a drug? A. Yes.

Q. Is nitrite of calcium a drug?

A. Nitrite of calcium is not there.

Q. I am not speaking whether it is there or not. Does it exist?

A. Oh, it is a chemical substance.

Q. It is a chemical substance?

A. Yes, a chemical substance.

Q. Is the nitrite of magnesium a drug?

A. Any nitrite would be a chemical substance.

Q. If the bleaching process adds nitrite of magnesium or sodium or calcium or potassium to flour, it adds a drug to the flour, or a chemical, doesn't it?

A. That is an assumption that I would not like to make.

Q. Well, I am asking you to make this assumption, to
1733 assume that the treatment by the process does impart to the flour and cause to exist therein nitrite of sodium, nitrite of potassium, nitrite of calcium and nitrite of magnesium? A. Yes.

Q. Now, assume that to be the fact. A. Yes.

Q. Now, understand, of course, that expert witnesses are not responsible for the assumptions but give their opinions on the assumptions? A. Yes.

Q. Now, assume that to be true, denying any responsibility for the assumption? A. Yes, yes.

Q. If it is true then, do you not say that drugs or chemicals have been added to the flour?

Judge Scarritt: I object to that as not based on the evidence in this case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. No, not in the way in which you put it, no, sir, don't add nitrite of sodium, nitrite of magnesium, nitrite of potassium, and so on, to the flour.

Q. No, but I ask you to assume that to be the fact, assume that in truth and in fact the bleaching process, we will call it Mr. Watson's process, the Williams' process; is that the

name of yours, or the American—the Alsop here at this time adds it to flour by chemical combination with bases therein?

A. Yes.

Q. Nitrite of magnesium, nitrite of sodium, nitrite of potassium and nitrite of calcium, I want to ask you if these substances are drugs or chemicals?

Judge Scarritt: I object to that, he starts out with an assumption, then asks another question, I object to the question because it is not based on any evidence in this case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. If these substances are eliminated under the process 1734 by baking, I would say no.

Q. Well, I am not talking about the baked product; I am talking about the flour.

The Court: Now, Professor, you are not responsible for the assumption, but assuming these things to be true, then what?

Same objection by the claimant.

A. Assuming then that the nitrite radicles, as we would call it, perhaps, combines with the magnesium, potassium and so forth, or the alkali and the alkaline nitrites contained in the flour, assuming that there is a combination there, that is, a permanent combination, why, of course, yes, assuming that there is a permanent combination.

Q. Now, let's get this radicle business; that is to say nitro radicle is the NO₂? A. Nitro radicle is the NO₃.

Q. The nitrous acid is the NO? A. Yes.

Q. NO₂? A. Yes.

Q. Is the gas nitrogen peroxide. Now, K stands for potassium, doesn't it? A. Yes, sir.

Q. What stands for sodium? A. Na.

Q. Na for sodium, like that, is it? A. Yes.

Q. What for calcium? A. Ca.

Q. Ca for calcium. What for magnesium? A. Mg.

Q. Now, then, nitrite of potassium would be KNO₂?

A. Nitrite, yes.

Q. Just take there this radicle and add it to that base.

A. Yes sir.

Q. The NO₂, right straight down like that?

A. Now, you have got it, yes, sir.

Q. Now, that is the four nitrites?

A. Those are the four nitrites.

Q. Now if we were not trying a bleached flour case at all, and I wanted to get your report, and asked you what kind of a substance KN_2 was, would you tell me it was a drug or a chemical?

A. Yes, I would call it a drug.

1735 Q. If I asked you what NaNO_2 , if we were not in the bleached flour case, Alsop had nothing to do with it when you say it was a nitrite of sodium, a drug? A. Yes.

Mr. Elliott: I object to the assumption that this witness would say something else if this Alsop process was in it.

Mr. Butler: He said it might be baked out every time I mentioned flour.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. If CaNO_2 were shown to you by your students, and you was asked if that was a drug or a chemical what would you say it was? A. A chemical, the only distinction between—

Q. Now, let me get this; drug, drug, drug, chemical, chemical? A. Yes, sir.

Q. Now, in all flour there is some of each one of these bases, isn't there, potassium, sodium, calcium, magnesium?

A. Yes, sir.

Q. Isn't there? A. Yes, sir.

Q. Each one of these bases shows great avidity for the radicle of nitrous acid and of nitric acid, isn't that true?

A. Yes.

Q. And they readily combine? A. Yes.

Q. So that you would also have in there the KNO_3 , wouldn't you, NaNO_3 , CaNO_3 and magnesium NO_3 , wouldn't you, nitrous acid or the nitric acid combining, that is the radicle, the NO_3 for nitric acid combining with this base, will give the nitrites of sodium and potassium, calcium and magnesium?

A. Yes, sir.

Q. That is known to every student in elemental chemistry, isn't it?

A. Yes, sir, you are assuming, of course, that combination takes place?

Q. That is, no, I am proving it takes place by you, when you bring nitric acid into contact with potassium, sodium, calcium and magnesium you make nitrite of each, do you not?

A. I have not determined that.

Q. Don't you know that as a chemist?

1736 A. Tested in the test tube.

Q. I am not talking about that.

A. Yes, if you made up—if you put it in the test tube.

Q. And if you treated it with NO_2 gas? A. Yes.

Q. The radicle of nitrous acid, you will get the nitrates, won't you? A. Yes, sir.

Q. And that law is certain, is it not?

A. As chemical laws are all, yes, sir.

Q. As certain as the law of gravity, chemical re-action is, isn't it, chemistry is an exact science like mathematics, isn't it? A. Yes.

Q. Now, then, see if I state this correctly, not about flour, now— A. No, I understand.

Q. Given a mass of organic material and inorganic material mixed together, complex in character, flour is complex in character, is it not? A. Yes, sir.

Q. Organic matter and inorganic matter mixed together, is it not? A. Yes, sir.

Q. Now, we have some potassium, some sodium, some starch, some proteid, some oil, some coloring matter, terpin—are you familiar with the substance known as terpin, this new terpin that Wesener— A. I am familiar with terpin.

Q. Are you familiar with the new one that Wesener found, terpins are colorless, all up till the time Wesener found one, terpins were generally colorless and turned yellow with time, but Wesener found one—

Mr. Elliott: Dr. Wesener.

Q. Dr. Wesener, Professor John A. Wesener, Dr. John A. Wesener found one that was naturally yellow, but turned colorless; are you familiar with that one?

A. I am not familiar with terpins except to know their composition.

Q. Well, did you ever hear of that one that he discovered?

A. You have just spoken of that.

Q. Did you ever hear of it before? A. No.

Q. Then I will not put that in my problem, now. But
1737 to the mass containing sodium and potassium and starch and protein and oil and water, all in the presence of moisture— A. Yes.

Q. There is added the radicle of nitric acid, that is NO_3 , is it not, and there is not enough of that radicle to satisfy each of the bases, or to follow—use each of the bases in combination, is it not a law of chemistry that that radicle will distribute itself to each of the bases?

A. The law of chemistry is that the law of affinity that the nitric acid will combine with the elements with which it has the greatest affinity in that compound, whatever that is; if it has the greatest affinity with this assumed terpin, why, of course, it would combine with that, if the terpin would be suffi-

cient to satisfy it, then that satisfies it; but the law is, in my opinion, that the nitric radicle would combine with the element with which it has the greatest affinity, now, I am not competent to say—

Q. Is that the law of mass action?

A. I am not competent to say as to which one it would select; I haven't any proof of that, and I am only competent, as I said before—

Q. I want to ask you if it is not an elementary law of chemistry known as the law of mass action— A. Yes.

Q. That, given a complex mass with various bases and moisture— A. Yes.

Q. That nitric acid or the radicle from nitric acid will combine not with one, but distribute itself to each and to all of the bases for which it has any affinity, and that the amount of chemical action with each depends upon the mass of it and affinity. Now, isn't that the law of mass action known to students, one of the elementary laws of chemistry recognized everywhere in the elementary textbooks?

A. We believe in the law of mass action.

Q. Yes. Now, that is the law of mass action that has been taught since chemistry has been taught, that is, in all of the elementary textbooks, isn't it? A. Yes.

Q. That is used by your university? A. Yes, sir.

Q. That is true, isn't it? A. Yes.

Q. So, now, if we leave out of flour the terpin that Dr. John A. Wesener has found, leave that out, but we have 1738 sodium and potassium and starch and protein and oil, then if the law of mass action as it is defined in the textbooks of chemistry applies, the combination will be a nitrite of each of them, depending upon the mass of each and the strength of the affinity of nitric acid for each base; now, isn't that true and just as certain as the law of gravity?

A. You would say than that—

The Court: No, no.

A. In order to get my understanding of your question—

The Court: Oh, answer the question and let's get on.

A. Yes, sir, as you have explained it, it would.

Q. Yes, sir, that is all there is to that. Now, in your digestion experiments you tested the digestibility of the starch, did you? A. Yes, sir.

Q. Did you of the oil? A. No.

Q. Of the proteins?

A. No, sir, except in the peptic digestion; I did not take a quantitative of the peptones because I had not time, and Professor Willard worked it out thoroughly.

Q. Is raw starch digestible in the pancreatic?

A. It has to be prepared to digest.

Q. Well, I mean is raw starch digestible in the pancreatic fluid? A. Raw starch?

Q. Yes, sir.

A. No perceptible extent, it has to be prepared.

Q. Is it with saliva—raw starch?

A. No, it has to be converted.

Q. You made your experiments on flour and not on bread?

A. On both, of course, in flour it would have to be dissolved first.

Q. I understood you to say that you found there was no difference in the digestibility, that your conclusion was there was no difference in the digestibility of the starches?

A. Of the flour?

Q. Of the flour? A. Yes.

Q. Now, do you limit your conclusion to that?

A. Yes, sir, that is all I can testify to.

Q. I don't want to take you outside with respect to your own work? A. Yes.

1739 Q. Your work went to starches?

A. Yes, sir.

Q. And it took in saliva, gastric and pancreatic?

A. Pancreatic, yes.

Q. And pancreatic digestion and the saliva digestion are the same?

A. Yes, sir, well, so far as the diastase is concerned, the pancreatic diastase act similar to that.

Q. Starch is not a flesh making substance; it is simply a heater, in fact?

A. Yes, it produces heat.

Q. Now, do you hold, Professor Sayre, that the fact that you observed or believed that you did, namely, that bleached bread flour not impair the digestibility of the starch, according to your test, proofs, that the flour is not deleterious to health?

A. It is one of the proofs—

Q. Well, now, don't misunderstand me, of course the digestibility of starch might not be impaired at all, and still the food injured, am I right about that? I am not now speaking of that. I will speak of the food, not a flour, to get away from that, take a food consisting of starches and proteins and oil; now, may the food be injured and rendered deleterious to health without impairing digestibility of the starch; do

you understand what I mean exactly; I want you to understand it exactly? A. Yes, sir.

Q. To-wit, does the fact that one element, namely the starch, is not rendered less digestible, prove that the food is not injured or made deleterious? A. No.

Q. No, that's it; so that is true in flour, isn't it, Doctor?

A. Yes.

Q. So that your investigation, giving full credit for proper methods, faithful results and faithful recounting of them, will not be sufficient of itself to prove that the food was not injured and was not deleterious to health, would it?

A. No, that must be taken in connection—

Q. That would be one step, yes. A. Yes.

Q. Your idea would be that it was sufficient to prove that the starch was not poison or rendered injurious to health or less digestible, that is your idea?

A. That is one of the tests for determining whether the—

1740 Q. That is just one element. Now, before you can reach the conclusion that the food is not poison or deleterious or injured, similar proof would have to be shown as to each of the elements?

A. Each of the elements of the flour.

Q. Of the food, yes, sir, flour or bread or whatever it is?

A. No.

Q. It would not? A. It would not.

Q. What one is there then, is there any case in which you can take one element of a complex substance and examine it, and prove that the food has not been impaired as to value, made deleterious to health, or poison?

A. Yes, that was—

Q. Your one element in flour will prove that?

A. To me the investigation, of course, was confined to the flour, the starch of the flour. As I stated in my direct examination, that if anything deleterious had been added it would show itself, in my opinion, upon the starch digestion.

Q. Oh, yes.

A. Because that is a very delicate re-action, and my knowledge of ferments would show, would bring that out.

Q. What effect upon proteids and starch has NO₂ gas diluted with air?

A. It has the effect of bleaching it.

Q. Well, let's see, so it is bleached first, let us see, we have extracted the terpins first? A. Yes, sir.

Q. Then what effect will it have?

A. If it is overbleached, that is, you mean if it is overbleached?

Q. I don't mean anything of the kind; I mean just what I say; it has not been bleached at all, but we have extracted the terpins, bleached it first, taken it out, not by bleaching process, but taken it out. A. Yes.

Q. Separated it, isolated, taken that away, then what effect would NO₂ have on it?

A. I have not tried that particular experiment.

Q. Now, what effect does NO₂ have on flour?

A. I have not tried the experiment of NO₂ on flour.

Q. Do you think it is true, as stated in the patent in 1741 this case, that it increases the water content of the flour?

A. I never made any determinations in that particular.

Q. Do you know it is true that it doubles the gluten or the proteids, and so forth?

A. Never made any quantitative determinations in that particular.

Q. Is there any way known to chemistry or to science to convert starch into proteids?

A. Well, many things are possible, but I am not up on that question.

Q. The patent in this case says that the unbleached flour contained, I will not give the decimals, but 13 per cent of proteids, and so forth; the same flour if bleached contained 26?

A. Yes, sir.

Q. Did you yourself in your examination of the flour notice an apparent increase of the proteids—proteids are altogether the most valuable, are they not?

A. No, I did not examine that.

Q. Can you tell us whether or not that would be chemically possible, sir?

A. Well, when they can build up albumin from carbon alone I am not prepared to say.

Q. Tell us how they can build albumin from carbon.

A. No, I never done it.

Q. Was it ever done? A. Well, it is so reported.

Q. By whom?

A. By statements among the chemists that it had been performed.

Q. Can you give us a reference so we can look that up?

A. I am not stating that as a fact.

Q. No, but are you stating it that it is reported as a fact?

A. Yes.

Q. Where? A. Well, I don't know.

Q. By whom? A. I don't know.

Q. Where did you see it? A. Oh, I heard about it.

Q. Now, here is a report in the patent that is in evidence in the case, and I want to ask you whether or not you think it is true, whether you think it is possible to be true. "The

untreated flour showed the following constituents and proportions named: Water, 9.84, starch, etc., 74.11; proteids, etc., 14.99; ash 0.44; fat 0.62. The flour which had been 1742 treated by my process showed the constituents in the following proportions: Water 10.13,—a slight increase, you will observe; starch 62.24—a decrease of over 12 per cent of the total; proteids, etc. 26.71—an increase on proteids of over 12, a little less than 12; ash 0.30—a decrease of the ash; and the fat remains unchanged 0.62; so it will thus be seen that the flour which had been treated showed an increase of 11.72 parts of proteids, and a decrease of 0.14 parts of ash and of 11.87 parts of starch, an increase in the proportion of the proteids relative to that and the other constituents of the flour, especially of the starch and ash, is a highly advantageous result, as flour having such proportion of proteids is of course far more nutritive than the ordinary flour of commerce." Now, as a chemist are the results reflected in that statement possible?

Judge Scarritt: We object to that as incompetent, irrelevant and immaterial.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I would have to accept that on the evidence of good authority. I never performed that analysis. Those statements, all such statements, we have to depend on such statements from the authority and would have to go over his ground and have to go over the work myself in order to testify here under oath as to what my opinions are.

Q. All right. Now, let me ask you this question. We are given here an agitator full of flour—you have seen the Alsop bleacher?

A. I have seen the process of bleaching flour, and I have conducted—

Q. Now, the best chemical authority in the world, we will say, told you that that treatment increased the proteids of that flour over 12 per cent of the total, nearly doubling the proteids, would you accept that as the truth, if all of the chemists that you ever saw told you that?

Counsel for claimant objected to the question as absolutely incompetent, irrelevant, immaterial and having nothing 1743 to do with the issues in this case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. As a chemist I would go over the ground, as I have said before, to ascertain the truth of that statement.

Q. All right. Now, in your digestion experiments would not your digestion experiments disclose to you the difference in the quantity of the starch; now if this Alsop bleaching reduced the starch 12 per cent of the total, you don't have a comparable basis at all, do you?

A. That is comparable, yes.

Q. Well, now, let's see; did you find that the bleached flour was short in starch?

A. I simply, as I said, performed these experiments side by side.

Q. The same kind of flour?

A. The unbleached flour the same kind and the bleached flour the same kind—

Q. Go on, I didn't intend to interrupt you.

A. Well, I tested the unbleached flour and the bleached flour side by side, I have stated that, I think, clearly, and watched the process of its digestibility, the two flours, the digestibility of the two flours, comparing the two flours.

Q. Professor, I am very sure that I did not make myself understood; what I was trying to make myself ask you was this, this patent tells us that by the bleaching process the amount of starch is reduced about 12 per cent and the amount of proteids increased about 12 per cent; in your handling of the bleached flour and unbleached, in making your digestive experiment of the starch alone, as I understand? A. Yes.

Q. Did you observe that difference?

A. I did not observe any difference.

Q. In the starch? A. The digestibility of the starch—

Q. No, I mean in the quantity of the starch? A. No.

Q. In like amount of flour, did you make any determination?

A. No, did not make any starch determination, no.

Q. Now, if it is true that the bleaching of the flour took out 12 per cent of starch and put in 12 per cent of proteids, would not that interfere with your test because you would have 12 per cent more of starch in the same quantity of flour in one case than you did in the other?

A. Yes, sir.

Q. Well, now, would not that interfere with your results?

A. Well, that would be all paper chemistry, I couldn't tell from that, just simply I would have to go over the ground.

Q. Well, very good, I don't want to embarrass you, but suppose there was in one sample of the flour, you took like quantities of flour, bleached and unbleached, did you take like quantities? A. Yes, like quantities.

Q. Now, suppose one had twice as much protein as the other, would that interfere with your experiment?

A. Oh, yes, of course the different flours if they were constituted differently, of course—

Q. That is what I meant.

A. If it were differently constituted, yes.

Q. And if it is true that the bleaching process reduced your starch so that one would have less than the other, that would render your experiments worthless, would it not?

A. We could have to—I cannot admit that any assumed conditions would render the experiments such as I have used, worthless.

Q. Well, impair its value, then, as evidence to support your conclusion?

A. If I compared it, if I compared the two different flours that had different compositions and unlike conditions, of course, that would not be reliable.

Q. Now, if it is true that the bleaching reduced your starch 12 per cent and you didn't know it, but assumed that it had just the same proportion of starch as the unbleached flour— A. Yes.

Q. Would that impair the value of your result?

A. I would like to answer that in this way, that if I should get that phenomenon that you speak of, that is to say, if I should have a flour which had been treated as you say, and the gluten had been, of course, as you say, and the pancreatic digestion would be similar, I would have to go further to find out the reason for that.

Q. Yes, but if [my] mistake, we will say, that you got one flour that had 12 per cent less starch than the other and 1745 doubled the gluten, then your experiment would be valueless?

A. Yes, if you had a flour that had that difference in constitution, now, understand—

Q. Now, that is all. A. That is right.

Q. Now, logically and as a scientific gentleman, isn't it also true that if as Mr. Alsop has stated in his patent, the bleaching by the Alsop process does reduce the starch 12 per cent of the total and increase the proteids 12 per cent of the total, thereby doubling the proteids, that also it would be true that they could not be compared in the method that you compared them in your experiments? A. Yes.

Q. Isn't that true?

A. The assumption here is one that I am not at all familiar with.

Q. No, you are not responsible for that?

A. No, I am not responsible in any way, and I could not make any statement here to the jury with regard to that, if the digestibility were the same it would be, as I said before, be submitted to further investigation. Now, there is a possibili-

ty by which the digestibility would be modified by nitrites, and I would have to consider the cause of that.

Q. We will call that a pound of flour? A. Yes, sir.

Q. This is another pound of flour? A. Yes, sir.

Q. Is this one-eighth, the proteids, we call that P up there, in this one-quarter is starch? A. Proteids.

Q. Here is our starch in this 75 per cent is starch; in this 60 per cent is starch. Now, according to your test, now, we will say that this was bleached by Alsop, this has never been made, understand, but we will just assume this for your scientific opinion, and it was changed from that then to this, and you compare the unbleached with the bleached, would your method then fairly disclose the relative digestibility of the starch?

: Judge Scarritt: We object to that because it is admitted that it is not according to the evidence, and has never been done.

The Court: He may answer.

To which ruling of the court claimant then and there
1746 duly excepted.

A. Would discover the relative digestibility of the flour.

Q. Well, you are only digesting starch?

A. Yes, the diastasic digestion, the starch, the pancreatic digestion—

Q. Does the correctness of your conclusion depend upon the identity of quality of the flour in constituents and everything else?

A. My comparison here of the flour is simply on that of digestibility, as I have said, on digestibility. Of course, if you want to ask the question whether a smaller amount of starch will be digested and a larger amount of starch will be digested, of course—

Q. In making your experiments which you reported to Mr. Elliott did the justness and usefulness and reliability of your conclusion depend upon the fact that you had the same kind of flour, one bleached and the other not bleached?

A. Yes, that is that part of it.

Q. Did it depend upon the fact that one had the same amount of starch as the other had?

A. No, it depended upon the rapidity of the digestion.

Q. Did it depend upon the fact that one had the same amount of proteids that the other had?

A. It depended upon the rapidity of the digestion.

Q. So that you say that your methods as detailed by you here would disclose the relative digestibility of starch, wheth-

er one had more starch than the other or one had more proteids than the other? A. Yes, sir.

Q. Is that true?

A. The only point is the question of inhibition.

Q. Do you answer my last question affirmatively, do you say it would? So that your methods that you have described here, would give truthful results, no matter whether one had any proteids or not, and no matter whether one had any starch or not?

A. I am not assuming anything of that sort.

Q. Well, but I am not asking you to assume anything; I am asking you to tell me if somebody had come along and taken out half the starch out of one sample by bleaching it,

1747 I am asking you whether that would get the truth on your results or not; can't you answer that?

A. I want to have a concrete statement of something that I can understand and something that I can answer.

Q. Well, take this concrete statement—

A. And I don't wish to answer a question that assumes a lot of material there that I cannot qualify, I have not qualified to answer, and am not competent to answer any question—such cross-examination.

Q. Then tell me you don't know then, assume that this flour that was bleached had by the bleaching process one-half the starch destroyed, and converted into proteids, would that affect the verity of your conclusions?

A. My conclusions were, I don't believe, rendered invalid by any such consideration.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: Yes, sir, that is stricken out.

To which ruling of the court claimant then and there duly excepted.

(Question read by the reporter.)

A. Well, my conclusions were not based on anything of that sort.

Mr. Butler: In order to save time and for your assistance when you come back this afternoon I will ask you one question, and that will be this question, to detail your method as to weight, method of treatment of the flour in each of the experiments that you detail and do it with such scientific exactness that you are willing to have it published as your report, and then tell me whether or not if bleaching destroys half the starch—

A. Well, I would like to perform the experiments here if it is necessary.

The Court: That question will be asked you after the lunch hour.

At this point a recess was taken until 2 o'clock P. M.

1748 Pursuant to adjournment court met at two o'clock P. M. Thursday, June 23, 1910, and proceeded with the trial of said cause further as follows:

Professor Sayers, resuming the stand, was cross-examined further by Mr. Butler, and testified as follows:

Q. Professor Sayers, I think I can shorten, even, the request I made just when we adjourned, when I asked for the details of your experiments, by asking you to answer four or five questions, and so that you and I will understand each other definitely—

A. (interrupting) I suppose we misunderstood each other, I don't know.

Q. (continuing)—I have taken the liberty of writing out the questions, and I will hand you a copy of them. There are five in number (handing the questions to the witness). The first one is, in your digestion experiments, did you, before digestion, determine how large the amount of starch and proteids or fat, or moisture, in each quantity of flour used, and if so how much in each? A. No, sir, I did not.

Q. Second, after digestion, did you determine the amount of starch left, or sugar produced of proteid, or fat, or moisture remaining, and if so, how much of each?

A. I did not, except in a few experiments with the sugar.

Q. Third, do you know any method for determining the extent of proteids digested? A. No, sir.

Q. You know no method?

A. Oh, yes, I know,—excuse me. Do I know of any method determining the extent of proteids? A. Yes, sir.

Q. You say no, sir, to that? A. Yes. I do.

Q. What method do you know? I mean, proteids in flour.

A. Well, by the determination of the end products of that digestion—the products of digestion, it would be the
1749 Kjeldahl determination of the nitrogen, is considered as the most accurate method. I did not have time to determine.

Q. You never did that?

A. Oh, yes. I determined nitrogen, but I did not determine that, in this case, no, sir. I have said that I did not determine the proteid digestion. Is that the point?

Q. Yes. You made no determination of the proteid digestion?

A. Except in that one case. Not quantitative determination of the proteids, no, sir.

Q. In determining the amount of nitrogen in the digestion solution, you will also include the nitrogen found in a whole lot of bodies which are not proteids, won't you?

A. Yes. I did not determine the—

Q. (interrupting) The nitrogen determination, then, is no good to determine proteids?

A. Of course, we have to assume that the nitrogen contents—nitrogen constituent in two flours, would be the same, of course, and any increase in nitrogen, would be the amount of—

Q. (interrupting) But there is nitrogen in starch, isn't there?

A. No. Nitrogen in starch? In flour, you mean? Yes, sir.

Q. What is the formula for starch? Any carbon—

A. Hydrogen and oxygen.

Q. No nitrogen?

A. No, sir. It is what is known as a carbohydrate.

Q. Did you use chloroform, or anything of that sort, in the digestion fluid? A. No, sir.

Q. Did the air have access to the beaker, or other vessel in which digestion took place?

A. No, sir. It was performed in an asphalt thermostat water bath, in which the vessel was stoppered, and the vessels rotated in this bath.

Q. Was any air in the vessels holding the digestive fluid?

A. That is, in the digestive fluid; you mean?

Q. Or, in contact with the—

A. (interrupting) During the digestion, do you mean whether there was any air above? Yes.

Q. So, then, the digestion fluid was exposed to air?

A. Yes.

1750 Q. Air has oxygen in it? A. Yes, sir.

Q. Nitrites, oxidized, become nitrates? A. Yes.

Q. Is that right? A. Yes, sir.

Q. So, then, these digestion experiments took place in the presence of oxygen, in the air?

A. Yes. In atmospheric air, yes, sir.

Q. Digestion in the body takes place in the absence of oxygen, does it not?

A. Well, I am not a physiologist enough to trace out that.

Q. You know, do you not, that it is true that the nitrites are not nitrated, during the process of digestion, but that, on the contrary, there are present substances which have the tendency, and which do, in fact, reduce nitrates to nitrites?

A. I admit that, certainly, that they are reducing substances, yes, sir, certainly.

Q. They are reducing substances, and not oxidizing substances?

A. Yes, sir. We are now talking of nitrogen compounds. They are reducing processes, going on in the case of—

Q. (interrupting) Nitrite of sodium readily reduces to a nitrate of sodium?

A. Oh, that would not be correct. You do not mean to say—

Q. (interrupting) Or, oxidizes?

A. You just mean the reverse, don't you?

Q. Yes. A. Yes.

Q. Upon exposure to the oxygen of the air, then, you may take a much larger dose of it, after it is oxidized, to some extent, can't you? A. Yes.

Q. And if you will fully oxidize it, the nitrate, itself, becomes relatively harmless. Isn't that true? A. Yes, sir.

Q. Take a whole handful of it, then, probably?

A. Well, I haven't taken a whole handful of nitrite, or nitrate, and I don't wish to make any assertions further than this, that—

Q. (interrupting) Are there bacteria which change nitrates to nitrites? A. Yes, sir.

Q. And conversely?

1751 A. There are bacterial changes going on, and the tendency, in the case of the nitrates, as I understand it is—I am not a bacteriologist, understand, now—as I understand it the tendency in the case of nitrate, is in the presence of bacteria, to reduce them to lower oxides of nitrogen. Understand, I have not performed any experiments on that line.

Q. Well, now, if you were to use chloroform, you would eliminate the danger of bacterial action, and would not have affected your enzymic action, at all? Isn't that true? Chloroform would stop the bacterial action, but would not affect the enzymic action?

A. No. Chloroform is not said to affect the enzymic action, yes, sir.

Q. So, your methods did not eliminate the danger of bacterial action? A. No.

Q. Now, I think, inadvertently, perhaps, this morning, I did not get everything just right, that we marked on the board, here. $C_{10}H_{16}$ is the terpene. That, you did not have anything to do with?

A. C_5H_8 is the basis, as I understand it of the terpenes, and of course we have $C_{10}H_{16}$, and $C_{15}H_{24}$, and so on. They are multiples of C_5H_8 .

Q. But this is the formula?

A. This is the true formula.

Q. This is the formula Dr. John A. Wesener gave us?

A. Yes, sir.

Q. For the terpene?

- A. That is the general formula for terpenes, yes, sir.
- Q. But you never heard of a yellow terpene before, did you, before I told you about it this morning? A. Let me see.
- Q. You never heard of this discovery of Dr. John A. Wese-
ner?
- A. No. I am not so familiar with terpenes as to say that there could not be a yellow terpene.
- Q. You do not know? A. No, sir, I do not know.
- Q. That is the way I understood it. It was news to you?
- A. Yes, sir.
- Q. Now, N_2O_3 . We had that in the poisonous group this morning, but that is nitrogen trioxide, isn't it? A. Yes, sir.
- Q. And that is known in a colored bluish liquid, isn't it?
- 1752 A. Yes, sir, it is a colored liquid, yes.
- Q. N_2O is nitrogen peroxide? A. NO_2 .
- Q. NO_2 ? Yes. I misspoke myself. A. Yes.
- Q. N_2O is laughing gas, isn't it? A. Yes.
- Q. HNO_2 is nitrous acid? A. Yes.
- Q. HNO_3 is nitric acid? A. Yes, sir.
- Q. But NOCl is nitrosyl chloride?
- A. Yes, sir. N-i-t-r-o-s.
- Q. "X" I have got it. That will do just as well as "s". Is it spelled "x"? A. No, sir.
- Q. Now, potassium nitrite is KNO nitrite, to, is that the way to write it?
- A. That is right.
- Q. Sodium is NaNO_2 ? A. Yes, sir.
- Q. What is the other one—calcium? A. Yes, sir.
- Q. CaNO_2 ?
- A. Yes, sir. Calcium is of the bivalent character.
- Q. $\text{Ca}(\text{NO}_2)_2$? A. Yes, sir.
- Q. And the other was magnesium? A. Yes, sir.
- Q. Mg —is that the bivalent, or single?
- A. I don't know of magnesium nitrite?
- Q. Nitrite.
- A. Yes. Nitrite, I presume it would combine in the NO_2 .
- Q. In the bivalent form? A. Yes, sir.
- Q. $\text{Mg}(\text{NO}_2)_2$. Now, in chemistry, the "K"—the metal, would be called the base? A. Yes, sir.
- Q. And the NO_2 parts would be called the radical?
- A. Well, we—
- Q. (Interrupting) I mean, before the combination.
- A. Yes, sir.
- Q. And, when they are combined—
- A. (Interrupting) They are called the acid radical.
- Q. Now, in the same way we might make nitrates upon each one of these bases? A. Yes, sir.

Q. By combining the NO₃. Is that [tight]?

A. Yes, sir.

Q. And these are inorganic substances?

A. Those are inorganic substances, yes, sir.

Q. Now, when we come to the organic substances—the proteids, and different constituents of the flour, act as bases?

A. Yes, sir.

1753 Q. And that becomes organic chemistry, then?

A. Yes, sir.

Q. And it is very difficult and involved, to write the base, and the combination, isn't it? A. Yes.

Q. But they form various organic compounds?

A. Correct.

Q. And those that would take the nitrous radical would be the organic nitrites? A. That is right.

Q. And those which would take the nitric radical would be the organic nitrates? A. Yes, sir.

Q. Breaking up into a great variety of forms, of the most difficult combinations to remember? A. Yes.

Q. And some quite hard to understand? A. Yes.

Q. And, among organic nitrites, there is known a nitrite called the amyl nitrite, isn't there? A. Yes, sir.

Q. That is known to druggists and to medical men?

A. Yes, sir.

Q. And is taken by inhalation, as a rule?

A. Yes, sir.

Q. And a drop or two is—it volatilizes very readily, too, and a drop or two is sufficient to give you a full medicinal effect, or nitrite effect?

A. That is right, yes, sir.

Q. Whether that is formed in flour or not, you do not know?

A. No, sir.

Q. Whether it is formed by Alsop's bleacher, in flour, you do not know?

A. I am not competent to testify as to that.

Q. I think I will write one more reaction, if I can. I had this on the board once before, but, as it relates to another bleacher—suppose we have this NOCl, the nitrosyl of chloride, and bring it into contact with water, we will then get muriatic acid, won't we, and nitric acid? A. Yes, sir.

Q. And this same nitrous acid, HNO₂? A. Yes.

Q. And this same old nitrous acid will be around, ready to make nitrites, with anything that it will combine with, won't it? A. Yes.

Q. How is that? A. Yes.

Q. And, upon oxidizing the nitrous acid, or the NO₂, you will get the nitric, and the nitric will be around, ready to make nitrates, out of everything it can get hold of, won't it?

1754

A. So unstable are those compounds, that you can predict anything.

Redirect Examination

By Mr. Elliott:

Q. Mr. Butler, in interrogating you about met-hemoglobin, brought out that you had seen met-hemoglobin, as I understood it, in a child.

A. That was brought out in this testimony, whether I had seen met-hemoglobin, and I wanted to relate just the circumstances. That was a case of poisoning, and it was shown to be met-hemoglobin poisoning. That is the statement of the physician, was to the effect that it was poisoning, but this was due to the administration of over doses to a very small child of acetanild.

Q. Acetanild? Do you know anything about the amounts?

A. Well, it was before they knew of the effects of acetanild, and before they knew of its poisonous character, and I imagine, in this case, there must have been an impure acetanild formed. There are other substances, besides nitrites, that will form met-hemoglobin, and it is so in this case, that that was the pronounced condition.

Q. I will ask you if it is within your knowledge that nitric acid and nitrous acid have been or are administered as medicines.

A. They have, yes, sir.

Q. And about the present? Do you know whether they are still administered as medicine—nitric acid and nitrous acid?

A. Nitrous acid was, in the time when I was dispensing, administered very commonly in the form of what was known as Chapman's Diarrhoea Mixture. The formula of it is published in Griffith's formulary, and the amount of the nitrous acid there stated is one fluid dram of the nitrous acid to eight fluid ounces of camphor water, and forty minims of tincture of opium, given in cases of diarrhoea and dysentery.

Q. Now about nitric acid?

A. Nitric acid is sometimes given, in a diluted form—diluted nitric acid.

1755 Q. Did you discover any xanthoprotein, in these flours that you have testified you examined?

A. No, sir.

Q. Now, you were asked something about diazo compounds, and Mr. Butler asked you if this Griess reagent would show the presence of diazo compounds. I will ask you if you made any test, in this digestion fluid, to see if diazo compounds were formed, and if so, with what results?

A. I don't think that was admitted. I don't think that point was admitted, that diazo compounds were formed, in my evidence.

Q. No, I did not say you said they were formed.

A. Well, assuming that they were formed? Is that the idea?

Q. I don't remember. I am just asking if you made any tests to see if diazo compounds were formed. A. Yes.

Q. And with what results? A. Negative results.

Q. What would you say as to the temperature, as controlling the formation of diazo compounds?

A. In order to form a diazo compound of the aromatic series—that is to say, of the phenol compounds,—compounds that we call the aromatic series,—as a rule, it is necessary to keep the temperature down to a definite decomposition. Some chemists state that they can form diazo compounds in crystalline form, from aqueous solutions, but it is generally admitted that they are unstable—unstable at the ordinary temperatures, and my own opinion is—now, I am not giving that as an experimental fact—but my own opinion is, that they are very unstable, and will be likely to be broken down.

Q. As a matter of fact, have you tested, and you say you got negative results?

A. Got negative results. That is to say, I had these experiments—we performed—Professor Emerson and myself—we both went over the same ground, to ascertain whether we could get the diazo reaction from this solution. We could get no diazo reaction from the use of the reagent.

Q. I will ask you if, in your judgment, sodium nitrite, or potassium nitrite, or any of these other nitrites mentioned by Mr. Butler, are added to flour by treating it with this Alsop process.

1756 A. No. No sodium nitrite, or any of those inorganic nitrites, in my opinion are added to flour, as we understand addition.

Q. Well, Mr. Butler was asking you as to the chemical formation of nitrites, and nitrates, and discussing the certainty, and so forth, with which they would be formed. I will ask you, as to these chemical combinations that he referred to is it true that concentration, and heat, and pressure, and the presence or absence of other substances generally—the law of mass action,—do they control these chemical combinations, as well as others? Do I make my meaning clear?

A. Well, I don't know about what controls chemical action.

Q. Well, it has been brought out here, I believe—at least this is my understanding—that, in dealing with a possible chemical reaction, that you must take into consideration the concentration. A. Yes.

Q. The law of mass action. A. Yes.

Q. Heat, pressure, and these things. A. Yes.

Q. Now, I will ask you if that applies to these reactions, just as well as others.

A. I suppose not, because reactions differ in their concentration, very much. Yes, I should have to, in order to grant those facts, I should have to make a further study of the whole subject.

Q. I believe you are answering my question in the affirmative. That is to say, in the absence of the knowledge of those conditions, could you say that any particular compound would be formed? A. No, sir.

Q. I will ask you, Professor Sayers, why you dealt with starch, in your digestion work.

A. That is, the starch constituents you mean?

Q. Yes. Why did you make your determinations on that?

A. I dealt with flour, you understand—not with starch.

Q. You dealt with the whole flour content?

A. Yes, I used the whole flour content.

By Mr. Scarritt:

Q. And made the digestion experiment on the starch.

1757 A. We understand each other, don't we?

By Mr. Elliott:

Q. You used the whole content of the flour? A. Yes.

Q. Now, when you go to determine the relative digestibility, you worked with—

A. (Interrupting) With the one factor—starch.

Q. Why did you do that?

A. The one factor that I used—the starch is, in the first place, it was very simple, direct, sensitive, and delicate, in my opinion. If I were to take the other—the ground of that had been gone over, or was gone over by Professor Willard—I would have been dealing with an element of analysis that would require more time and more care than I had to give to it.

Q. Now, this nitrogen determination is a quantitative one, is it not? A. The nitrogen?

Q. Yes, where you determined the amount of digestion.

A. Yes. It is quantitative.

Q. This method of making the nitrogen determination—

A. (Interrupting) Kjeldahl method.

Q. (Continuing)—is a quantitative one?

A. Yes, sir, it is a quantitative one, yes, sir.

Q. Now, I will ask you, would the method you employed, in your judgment, inform you accurately of the relative digestibility?

A. I considered that, so far as I am concerned, for my purposes, it convinced me more positively than any other kind of digestion.

Q. Now, I don't know if I asked you in your direct examination if you had—or whether you testified to dealing with the administration of sodium nitrite itself, placed in digestion fluid. Do you remember if you testified to that?

A. I don't remember.

Q. Well, if you ever made such experiment, please tell us what it is,—dealing with sodium nitrite.

A. I took flour that gave no reaction with the Griess.

By Mr. Butler:

Q. You mean the pure nitrite of sodium?

A. Yes, the pure nitrite of sodium. I took some unbleached flour that gave no Griess reagent test, and mixed with that an amount of sodium nitrite, that would correspond to, 1758 or would be considered as one part per million, and of the two parts per million and five parts per million, of sodium nitrite, and submitted that.

By Mr. Elliott:

Q. That was added to the flour, as I understand.

A. Added to the flour, yes, sir, and then I treated that flour by using the digestive processes—the pancreatic digestion, and the peptic digestion, in order to see whether that nitrite of sodium would receive the same reaction, or meet with the same fate, with the so-called nitrites, of the bleached flour, would meet. I found that this reducing action, or whatever it may be, was the same—that is to say, the Griess test, after prolonged digestion—an hour and a half or two hours, according to the percentage of sodium nitrite present—would disappear—give negative results.

Q. And did you ascertain, by taking some of the liquid out, and testing it with the Griess reagent? A. Yes.

Q. Now, tell me, in the case where you used five parts per million of sodium nitrite, how long was the pancreatic digestion working, before the nitrites had disappeared?

A. Before the nitrites disappeared, it was about—if I recollect rightly, three hours, five per cent. And then, as you lower—

Q. (Interrupting) With the peptic digestion, next.

A. The peptic digestion was, in some cases—it varied. It was two hours, in the peptic digestion. As I said—

Q. (interrupting) Two hours, before it disappeared?

A. Yes, sir.

Q. Now, take where you added one part per million sodium nitrite. I want to know the extremes. Where you used one part per million, sodium nitrite, how long before that disappeared in the pancreatic digestion?

A. About, sometimes as quickly as fifteen minutes.

Q. And then, with the peptic?

A. In the peptic digestion, it took longer than that, in the longer periods. That is to say, when I got the fifteen-minute reaction with the pancreatic, the peptic reaction was prolonged, but in a like case, where the pancreatic digestion was longer than the peptic digestion, then it was an hour and a half, about, in the case of the peptic digestion, and about two hours, or thereabout, in the pancreatic digestion.

Q. That is, one part per million?

A. Yes. In one part per million. They seemed to vary.

Q. Now, a statement was read to you from a patent—

Mr. Butler: (interrupting) That was Exhibit 1, being the Alsop process, Mr. Elliott.

Mr. Elliott: Exhibit 1?

Mr. Butler: Yes, written and signed by J. N. Alsop, whether his lawyer wrote it, or he wrote it, I will not say.

Mr. Elliott: You are not testifying at the present time. I will put you on the stand.

Mr. Butler: I will tell who wrote the specifications, if you do.

By Mr. Elliott:

Q. Do you know, or have you knowledge of Professor Charles E. Monroe, formerly president of the American Chemical Society? A. I know of him.

Q. Is he a gentleman of standing in that profession, to your knowledge?

Mr. Butler: We object to that. He is not here as a witness, and is not referred to or named in any document.

The Court: Let me hear this.

By Mr. Elliott:

Q. First, I will ask you if he is a gentleman of standing and repute. A. I don't know. I don't know his reputation.

Q. Well, if you don't know him, then, I presume there is no use. You do not know what his reputation is?

The Court: As a scientist?

A. No. I do not know him, as to his standing.

By Mr. Elliott:

Q. Suppose a chemist of standing in his profession—of pronounced standing in his profession, made the statement, or gave the analysis on which the statement was based, that was read to you by Mr. Butler, I will ask you if that knowledge would cause you to give credence, at

least, to the statement, until you had been enabled to disprove its falsity.

Mr. Butler: To disprove its falsity?

By Mr. Elliott:

Q. That is, would you accept it, until it had been disproved?

Mr. Butler: Wait a moment. Now, your Honor, it seems that the patent we have offered in evidence no longer enjoys the confidence of its author.

Mr. Elliott: I don't know why you make that statement.

Mr. Butler: Well, you have been proving it to be false, ever since the trial began. Now, if they want to try the question of whether or not the author was justified in putting that statement in, we will have to prove that by good evidence.

The Court: You mean Alsop, the author of the patent?

Mr. Butler: Yes, the author of the patent specifications. Now, if it is for the purpose of showing that he was misled, when he claimed in his patent that it added water, and increased the amount of proteids, and so forth, if that shall ever become material, let us go into that according to the rules of evidence. Now, I think it is not material to show that the author of the patent, Mr. Alsop, or his representative, was misled by it. They came in here and answered, without telling what they did to the flour. They said they treated it by the Alsop process, so the government had to show what Alsop's process was—began defining it, and step by step, when we called it NO₂ gas—it could not have been forgotten already—that it was denied that nitrogen peroxide was used, until Mr. Mitchell was put upon the stand, and showed that he collected money, as the owner of the Alsop patent, on the claim that it had a monopoly on NO₂, from the man in New Prague, who sent the baker, Wolf, the car load of bleached flour. Now,

they want to explain how it happened that the patent is
1761 a misrepresentation, and they want to show that this man would have made a misrepresentation, too, if he got a chance, so, therefore, I say it is immaterial, and the objection should be sustained, but, if it is material, I want the man who brought the samples of flour to the chemist, one containing twelve per cent of proteids, and the other twenty-six, to see if they were "gold-bricking" the chemist, giving him Durum wheat, perhaps, and some Southern wheat, one strong in proteid, and the other weak in it, and claiming the benefit for Mr. Alsop's patent—this pure air that we were told about that went in—nothing but the purest, purest air.

Mr. Scarritt: I object to this speech.

Mr. Butler: I am arguing the objection.

Mr. Scarritt: He has not made an objection yet.

Mr. Butler: I objected to this question, and I object to you, and move to strike you out.

Mr. Elliott: Do you know what the question is?

Mr. Butler: The question is whether or not you, Professor Sayers, if a reputable chemist had told you so and so, you would have believed it, and published it, and so forth. I objected to it as irrelevant and immaterial. Now that is the substance of it.

Mr. Elliott: I will withdraw the question.

Mr. Butler: I thought you would. Now, will you tell the jury who wrote the patent?

Mr. Scarritt: I will put you on the stand.

Mr. Butler: I will waive the oath, if you will tell who wrote the patent.

By Mr. Elliott:

Q. Dr. Sayers, what is the usual time, if you know, of digestion, in the stomach? I believe you did not qualify on physiological lines.

A. No. I know the time when indigestion commences.

Q. You do not know the time of digestion?

1762 A. Digestion is supposed to take place in a very short time, and, in six hours, I presume digestion is complete.

Recross-Examination.

By Mr. Butler:

Q. Acetanilin—is that an acid? A. Acetanilid?

Q. Yes, that Mr. Elliott referred to. Is that an acid?

A. No.

Q. What is it used for?

A. It is used to reduce fever.

A. And to make imitation vanilla flavor, isn't it?

A. I never knew it being used for that.

Q. It is used as a headache cure, isn't it? A. Yes.

Q. Don't you know of a man down in Washington who was convicted—

Mr. Scarritt: (interrupting): I object to this, if your Honor please, arguing with the gentleman.

By Mr. Butler:

Q. Do you know that it is used as an adulterant of drugs and medicines?

Mr. Helm: How many questions are before the witness?

Mr. Butler: I withdrew the other question.

Mr. Scarritt: I object to this as irrelevant and immaterial.

By Mr. Butler:

Q. Do you know that it is used as an adulterant of drugs?

The Court: He may answer that.

Mr. Scarritt: Save an exception.

A. Now, I will have to think up a case where it is used. I know of the fact that it has been found as an adulterant for some substances, yes, sir.

Q. Would it be a good thing to add to flour? A. No.

Q. What is that? A. No.

By the Court:

1763 Q. Sir? A. No, sir.

By Mr. Butler:

Q. It would be a bad thing, wouldn't it? A. Yes, sir.

Q. It is used for a medicine, isn't it? A. Yes, sir.

Q. Would nitrite of sodium be a good thing to add to flour, or a bad thing to add to flour?

A. It would not be a good thing to add to flour.

Q. It would be a bad thing to add to flour, wouldn't it?

Mr. Scarritt: We object to that as irrelevant, incompetent and immaterial.

A. I presume it would.

The Court: Mr. Elliott brought that out in reexamination.

Mr. Scarritt: We except to the ruling.

By Mr. Butler:

Q. What is the test, or reagent by which the xanthoproteid re-action is proved, in chemistry?

A. On proteids, you mean?

Q. Yes.

A. Nitric acid, and ammonia, produce an orange color.

Q. That is the way to make it, I want to find out how you prove it, when it is made. Suppose we have here a sample of yellow, sulphur colored flour, and we want to find out whether the xanthro proteic reaction takes place. How do you find it out?

A. Find out whether the elements of the substance are there.

Q. I know, but what tests do you use?

A. The tests for the nitric acid.

Q. You mean the Griess test?

A. Well, I never applied the Griess test to that.

Q. What would you apply?

A. I assume, in a case of that kind—I have never been called upon to identify the xanthoproteic reaction, Mr. Butler.

Q. And you do not know that you could do that?

A. I could devise a plan to do it.

Q. But you haven't it readily in mind? A. No, sir.

1764 Q. Mr. Elliott asked you whether or not this bleaching system added anything to the flour, and you said nothing added, "as we understand the word addition", or something like that. A. Yes, sir.

Q. Now, what did you mean by that?

A. I mean by that, that, in the one case, we take, in addition of nitrite of sodium, we would take a grain of nitrite of sodium, for example, and add it to several pounds of flour. That would be an addition, you see, but, if I took the gas, and introduced the gas, I would not have the right to say—

Q. (interrupting) That there was an addition?

A. That I had added nitrite of sodium, or potassium, to that. That is the point.

Q. It would be the same substance, though, whether produced in the flour, or added to it? A. If the substance—

Mr. Elliott: (interrupting) If it is there.

By Mr. Butler:

Q. Yes, that is what I mean.

A. If the substance is there.

Q. And if, as a matter of fact, the Alsop process makes nitrite of potassium or sodium and calcium and magnesium in the flour, they are the same kind of substance as if you bought them in a drug store, and added them to the flour, are they not? Same kind?

A. I think if I were to admit that,—it is not correct for me to say that they are, to that, because it is not the same, because you do not add sodium nitrite—

Q. (interrupting) Are there two kinds of nitrites of sodium?

A. No, sir.

Q. Are there two kinds of nitrites of potassium?

A. No, sir.

Q. Are there two kinds of nitrites of calcium?

A. No, sir.

Q. Are there two kinds of nitrites of magnesium?

A. No, sir.

Q. Or of the organic nitrites? A. No.

Q. So, nitrous acid is the same, whether made by the Alsop process, or made in a drug store by a chemist?

A. Nitrous acid is the same, no matter how you make it.

Q. So is nitric acid? A. Yes.

Q. So is NO₂ gas? A. The same.

1765 Q. And, if you can prove that nitrous acid is poison, when you find nitrous acid, why, then, nitrous acid is poison wherever you find it?

A. Yes, when it is in concentrated form, yes.

Q. Now, in chemistry, have you the rule of positive and negative evidence, that you apply, namely, this, that the positive testimony of one man that he did see a certain thing happen, is worth the negative testimony of a great many men,—worth more than the negative testimony of a great many men, who did not see it happen,—do you apply that rule in chemistry?

Mr. Scarritt: We object to that as calling for an improper conclusion of the witness.

By Mr. Butler:

Q. Well, negative results in chemistry, are not given as much weight as evidence, as positive results, are they?

Mr. Scarritt: Same objection.

The Court: You can answer that.

A. That is a psychological question, and it depends entirely upon what the negative results are based upon.

Q. Well, now, suppose we are trying to find out whether a substance is poisonous, and we give it to Tom, Dick and Harry, and they do not die, but we give it to Bill, and it kills him by poisonous action, would that be pretty satisfactory evidence that the substance was poison?

Mr. Scarritt: We object to that, mere argument, and calling for a wrongful conclusion of the witness.

The Court: He may answer.

Mr. Scarritt: We except.

A. Yes, that would show that that substance was poisonous in one case, and not a poisonous dose in the others.

By Mr. Butler:

Q. So that the positive result, then, would demonstrate the poisonous character of the substance? A. Yes.

Q. Even though other persons took it and did not die?

A. Yes.

Q. That is the rule of positive and negative results in chemistry, isn't it? A. Yes.

1766 Q. And, the proof that a man found something, chemically,—good proof that he found something, chemically, is worth the result of—

Mr. Scarritt: (interrupting): We object to that as mere argument.

Mr. Butler: Let me finish.

Q. (continuing) Is worth the testimony of a dozen men, who looked and did not find it, isn't it?

Mr. Scarritt: We object to that as mere argument and wrongful conclusion of the witness.

By Mr. Butler:

Q. Isn't that true?

A. I am not prepared to make that affirmative statement. I would like to give you an illustration.

Q. Now, I will ask you another question. You teach, don't you? A. Yes, sir.

Q. You teach beginners in chemistry? A. Yes, sir.

Q. Now, suppose you are analyzing a substance for a nitrite, and you find it. That conclusion is worth more than if every student in a large class examined for nitrite, and did not find it, isn't it?

Mr. Scarritt: Same objection.

The Court: He may answer.

Mr. Scarritt: We except.

A. Well, answering your question, there, as you put it, yes, certainly.

By Mr. Butler:

Q. Because you could not have found it, if it was not there, could you? A. No.

Q. But, they might have missed it, if it was there, mightn't they?

Mr. Scarritt: Same objection.

The Court: Overruled.

Mr. Scarritt: We except.

A. Yes.

Witness excused.

1767 Chauncey Abbott, called as a witness on behalf of the claimant, being first duly sworn, was examined by Mr. Elliott, and testified as follows:

Direct Examination

Q. Will you give your full name?

A. Chauncey Abbott.

Q. Where is your residence? A Skuyler, Nebraska.

Q. What is your occupation?

A. I am president and manager of a mill.

Q. What is the name of the mill?

A. Wells-Abbott-Neeman Company.

Q. What is the capacity of your mill?

A. Seventeen hundred barrels, daily.

Q. While I think of it, we had a witness on here yesterday, Mr. Shoecraft, and I will ask you if you were here when he was testifying? A. Yes, sir.

Q. He testified that he bought some flour from you, on March 12th I think it was, [1809]? A. Yes.

Q. Were you using the bleaching machine at that time?

A. Yes, we were.

Q. On the flour you sold him? A. Yes.

Q. Do you use the Alsop bleacher? A. Yes.

Q. How long has that bleacher been installed in your mill?

A. About five and one-half years.

Q. What grades of flour do you make, giving the percentages you put in each grade?

A. We make four grades. Our best patent runs from 82 to 85 per cent, and our second patent, 95. Then, we make a first and second clear. The second clear is sometimes called a low grade.

Q. Now, what grades do you bleach?

A. We bleach the two patents and, when requested to, we bleach the first clear, but never the second clear.

Q. How do you brand your patents?

A. The best patent is called "Puritan" and the second patent is called "Golden West". Do you want the names of the clear grades?

Q. Yes.

A. The first "Albemarle", and the second one "Brighton".

Q. What would be your definition or explanation of the word "patent", as applied to flour?

A. I understand that a patent flour is anything better than a straight grade, ranging from, say, 55 per cent to 95 per cent, or might be even more than 95. Anything under a straight grade.

Q. Have you made investigations to find out what effect bleaching has on flour?

A. Yes. I frequently had baking tests made under my direction in a laboratory and kitchen we have at the mill, and the results have shown that the bleaching improves the quality of the flour, the same as age does. That is, take two flours that are alike in all respects except that one is bleached and the other is not, the loaf from the bleached flour shows

a greater volume, more loaves to the barrel and finer texture as well as lighter color.

Q. Have you ever noticed any foreign odor in bleached flour? A. No, I have not.

Q. Have you ever noticed any difference in the taste or smell of bread made from the same flour, bleached and unbleached?

A. No, excepting that I think, when bread is made from flour made from new wheat, that the flour is slightly improved by the bleaching.

Q. That is, the flour, right from new wheat?

A. Where the wheat has not been thoroughly seasoned—gone through the sweat.

Q. In that case, you say you think the flavor would be improved by the bleaching? A. Yes, sir.

Q. I will ask you if, in your judgment, you can bleach your long patent and give it the color of your shorter patent?

A. No. I could not give it just the same color.

Q. Why not?

A. Because these two flours, the first and second patents, have different color characteristics. They not only—it is not that they just differ in degree of color, but slightly different characteristics. The shorter patent has more of a creamy tint, while the longer patent has something that I might describe more as a grayish white, because of foreign substances that we are unable to take out from the long patent, with out present system of milling.

1769 Q. If a flour contains inferiorities, such as bran specs, and so forth, I will ask you if you can conceal those inferiorities by bleaching?

A. Neither of those foreign particles are affected by the bleaching. They would show out more, in contrast with the flour, if the flour was whitened, and for that reason, I prefer not to bleach our first clear.

Q. Before you installed the bleacher—several years before you installed the bleacher, I will ask you if you ever noticed flour collect in any part of your mill and stick there?

A. Yes. It used to collect on the inside of the roll frames, where the grinding is done?

Q. Where the grinding is done? A. Yes.

Q. And it would stay there, would it? A. Yes.

Q. Now, have you ever noticed the color of such flour?

A. Yes. It used to take on a yellowish color.

Q. How would that color compare, for instance, with this (referring to an exhibit), would it be a deeper yellow or a lighter yellow?

A. It would be fully as deep as that. Possibly a little darker.

Q. The exhibit I refer to is numbered 47. Now I will ask you how much pure turkey wheat you can obtain in the course of a year of grinding?

Mr. Butler: Objected to as irrelevant and immaterial.

The Court: He may answer.

Mr. Elliott:

Q. I mean by pure turkey wheat, wheat that is free from yellow berry. A. In bushels?

Q. I don't care how.

The Court: Proportionately, perhaps.

A. Not to exceed 1 per cent, pure turkey wheat, unmixed with lighter colors.

Mr. Elliott:

Q. Not to exceed 1 per cent?

A. Not to exceed 1 per cent.

Q. And I will ask you if all the other wheat that is obtainable by you, to your knowledge, contains yellow berry?

A. We get some that is tolerably dark in color and other that where a portion of the berry is darker and a portion yellow, then others, where the berry is almost, if not quite, 1770 yellow, and it comes to us more or less mixed in cars and wagons.

Q. Now, take the wheat—I will put it the “standard wheat”, that, as a commercial proposition you are able to buy, for grinding, how will the percentage of yellow berry vary in that wheat—within what limits?

A. If the yellow could be separated, the yellow from the other, the dark, I should think 35 per cent yellow.

Mr. Helm: You think 35 per cent of the yellow?

A. Yes. The balance would be darker.

Cross-Examination

Questions by Mr. Butler:

Q. So, then, if a Nebraska miller came to you and told you his flour was made of wheat that only had 10 per cent in it, you would consider that a very improbable story, would you not? A. 10 per cent of yellow?

Mr. Scarritt: You mean the yellow berry?

Mr. Elliott:

Q. Yellow berry.

A. It would be much better than I am able to do, from the territory whence I draw my wheat.

Q. Where you draw your wheat? Is that west of Wellington?
A. No. In Nebraska.

Q. Lexington, I mean. You go as far west as Lexington, where the flour that is seized was made? A. Yes.

Q. So that, if somebody out around Lexington was making wheat down there and claimed to be getting as low as 10 per cent, you would think it very doubtful, wouldn't you—10 per cent yellow berry?

A. Well, he might get it in moderate quantities, that way, but not in very considerable quantities, I should think. At least I have not been able to.

Q. Is it true as Mr. Holdredge told us here yesterday, that yellow berry does not make as much flour, or as good flour, or as white flour, as the pure turkey?

A. Well, it is my opinion that there is no material difference in the two, excepting as to color.

Q. Well, let me be a little more exact with you, than these general conclusions, Mr. Abbott. Do you like yellow
1771 berry as well as you do turkey, for milling?

A. I said we have never had enough turkey to grind alone, but, as between the dark, as we call it, and the yellow, I would prefer the dark, because of the difference in color, if we did not bleach.

Q. Have you answered? A. Yes, sir.

Q. I do not yet know which way you decided the question, is the yellow berry a benefit or an injury in wheat, as a miller?

A. I said that I would prefer the dark to the yellow, because the turkey wheat makes a lighter colored flour when we do not bleach.

Q. Is it not true, that the turkey wheat makes a stronger flour, as Mr. Holdredge, one of the witnesses on your side, said, yesterday? A. I have made no tests.

Q. You cannot swear that Mr. Holdredge was wrong about that, can you? A. No. I cannot, not from actual experience.

Q. Are you one of the millers in charge of the defense of this suit? A. Yes, I am contributing towards it.

Q. Very anxious that it should be won? A. Yes.

Q. By your side? A. Yes, if we could.

Q. Now, Mr. Holdredge also told us that no matter how much you bleached the flour made from yellow berry that he did not have as good flour then as he would if it was made from turkey wheat.

Mr. Scarritt: I object to his attempting to repeat the testimony of other witnesses.

The Court: I sustain the objection.

Mr. Butler:

Q. What is the fact with respect to that? Do you swear you could bleach the flour made from yellow berry so it would be as good as the flour made from other wheat?

A. In my opinion, yes.

Q. How much bleaching does it take?

A. Well, we expose the flour about fifteen seconds.

Q. I don't care what you do. I will ask you how much bleaching it takes on yellow berry to make it as good as if it was not yellow berry? A. About fifteen seconds exposure.

Q. How many horsepower to one hundred barrels per day?

1772 A. May I answer that by saying that we use about three horsepower to seventeen hundred barrels?

Q. You bleach very lightly? A. Yes, sir.

Q. You use less gas than seven horsepower to one hundred and fifty barrels a day? A. Yes.

Q. Do you believe, then, that this bleaching process can be so used as to injure the flour?

A. I could not say from my own observation or experience.

Q. I know. You never did that, but what would you think about that? Do you think millers can use it to cheat and defraud and deceive and injure the flour?

Mr. Scarritt: We object to that.

Mr. Butler:

Q. He is an expert on the Alsop business.

The Court: He may answer.

Mr. Scarritt: We further object because it is invading the province of the jury.

A. I do not think it could be used to deceive.

Q. You do not?

A. If it is bleached excessively, my understanding is that it will injure the appearance of the flour, and will give it a chalky, disagreeable appearance.

Q. Let me put this case to you, suppose the Aetna mill, down here in Kansas, made a flour in August from mixed wheat, new and old, and straight grade of flour, and added to it a 20 per cent clear that they bought from the Hunter mill near by, and bleached it, and bleached it hard and heavily, so it looked white, and labeled it "High Grade Patent"—now assuming that to be the fact, do you think that would be cheating and defrauding and concealing the inferiority by means of the Alsop process?

Mr. Scarritt: We object to that as irrelevant, incompetent and immaterial, calling for a wrongful conclusion of the witness.

The Court: He may answer.

Mr. Butler:

Q. On that assumption of facts now?

A. I think that deception could be practiced without the bleacher.

1773 Mr. Butler: I move to strike out his answer.

The Court: Yes, that is not an answer, Mr. Abbott.

Mr. Butler:

Q. I want to know whether you think that is cheating or not?

Mr. Scarritt: Same objection.

The Court: He may answer.

A. Yes, I think it is.

By Mr. Butler:

Q. Yes, you think it is. Now, you say bleaching improves the quality of flour? A. Yes.

Q. You say bleaching improves the quality of your first clear? A. Not in my opinion, no.

Q. Oh. A. I do not like the appearance of it.

Q. I am not asking you about the appearance. I am asking you about the quality now. You say that natural aging improves all flour, don't you? A. Yes.

Q. It improves it, and makes it a better flour? A. Yes.

Q. Better flavor, doesn't it? A. Yes.

Q. Better loaf?

A. Better flavor, when the flour is made from a very new wheat, not properly seasoned.

Q. I am not speaking of bleaching. I am speaking of natural aging.

Mr. Scarritt: He is speaking of aging.

By Mr. Butler:

Q. Were you? A. Yes.

Q. I thought you misunderstood me. A. I do.

Q. Now, let us get it straight. It is truth known as long as the milling art has been followed, that flour improves with age? A. Yes.

Q. In color? A. Yes.

Q. In quality? A. Yes.

Q. In characteristics of dough? A. Yes.

Q. In the flavor of the bread?

A. I think there is a slight improvement, and it would be noticeable as between an unseasoned wheat.

Q. And that is a very valuable thing, isn't it—a very valuable quality in good wheat flour, that it will improve and better? A. Yes.

Q. And the improvement is marked?

A. Considerably.

Q. Recognized in the trade by millers and bakers, and consumers, since the milling art commenced? A. Yes.

Q. Now, in answer to Mr. Elliott's question, you very frankly and candidly said, that bleaching is the equivalent of aging, as I caught it. Bleaching improves, the same as age does? A. That is what I said, yes.

Q. Now, is it hard or easy to measure the amount of bleaching that will equal a given period of aging? Is that hard or easy.

A. I have no means of measuring. Nobody does, either.

Q. Now, why is it, if bleaching improves flour as aging does, that you declined, except when compelled to do so by the request of your customers, to so improve your first clear in quality?

A. I had made no experiments as to clear as to improvements it may make in quality, but I prefer the appearance of it—the color, unbleached.

Q. But, if you bleach the first clear, you give it the same appearance the natural aging does, don't you? A. Yes.

Q. Natural aging improves the first clear, doesn't it?

A. Yes.

Q. What is that? A. Yes.

Q. Then, is it just because you cannot sell it as well, that you do not bleach it, and decline to, give us the benefit of the changes resulting from Alsop's process, applied to the first clear?

A. Our first clear is practically sold for export, and, by the time they get it, it has acquired age.

Q. Then you are willing to deny to the foreigner the benefit of the Alsop process, but as a rule you grant that benefit to the Americans, your fellow citizens, do you?

A. No, the foreigner, when he gets it unbleached, has the benefit of age, because of the length of time required before it reaches the baker.

Q. Well, now, don't you bleach it and put it out on the market and tell people it is bleached, and say this "Here it is,

Here is my stuff, bleached. This is aged, and made as good in a few seconds as a year's time?"

A. The trade we sell to, in this country, require a first or second patent.

Q. Do you not sell any clears in this country? A. No.

Q. And you call a 95 per cent a second patent? A. Yes.

Q. How long a clear is left?

A. There is a 5 per cent which we call a second clear, low grade.

Q. That is thrown in your horse feed?

A. No, sir. That is the second clear.

Q. What is it sold for?

A. Sold for flour, almost entirely goes abroad.

Q. Alone or mixed with something else? A. Alone.

Q. How branded? A. Branded "Brighton".

Q. Branded "patent"? A. No.

Q. Why don't you call that patent?

A. It is not a patent.

Q. It is not a patent? Does patent mean anything in this country? A. There is no established standard.

Q. No, I know that. I know there is no established standard.

A. Yes, as I said, a patent means anything better than a straight grade.

Q. So that, if I ordered from you a carload of straight flour, and you cut off 25 per cent of the middlings, purified it, and put it in a sack, and labeled it "A best patent" and gave me the balance and bleached it, would you be giving me a very high patent there? A. No, sir.

Q. You would be cheating me, would you not? A. Yes.

Q. Yes.

A. Because I had taken out a portion from the straight.

Q. You had cut the straight?

A. Cut the straight, yes, sir.

Q. You know what a "cut straight" is don't you? A. Yes.

Q. How far is your mill from Updykes?

A. About fifty miles.

Q. Isn't a cut straight generally known in this country, among millers?

A. My understanding is that a cut straight is a straight grade, from which some middling flour is taken out. I never cut any.

Q. Do you understand that the straight grade includes the bran? A. Oh, no.

1776 The Court: You mean a cut?

Mr. Butler:

A. No, a straight grade. Then, if I ordered from you a straight grade, you would think I knew what I mean, and would give me all the flour that the wheat contained?

A. Yes.

Q. And you would not give me the bran? A. No.

Q. And you think that if you cut out 15 per cent patent you would be swindling me, wouldn't you? A. I do.

Q. Because I was entitled to all, and you took out the best of it, is that right? A. Yes.

Q. Now, if you bleached what is left—bleached the "Cut straight" you make it look like the straight, don't you, to the untrained eye?

A. If you have the two together, the difference would be noticeable.

Q. If you did not have the two together?

A. I think it would be very doubtful whether a person could detect the difference.

Q. So that the spurious would pass for the genuine?

A. One might be deceived.

Mr. Scarritt: I object to his calling it spurious.

Mr. Butler: It is spurious if it is a cut straight. He says it is a swindle.

The Court: Go on.

Mr. Butler:

Q. Now, if the cut straight was not bleached, it would not look so much like the honest straight, would it?

A. Well, I do not think a person seeing it by itself, could say positively whether it was or not.

Q. No. I mean they would not look so much alike, the bleaching of it down brings the color closer together, doesn't it? That is what it is for, isn't it?

A. It would be whiter. They would be nearer together.

Q. So that to that extent this bleaching helps the miller pawn off the spurious cut straight for the real straight, doesn't it?

Mr. Scarritt: I object to that as calling for a wrongful conclusion of the witness, and invading the province of the jury and not within the issues of this case.

The Court: He may answer.

1777 Mr. Scarritt: We save an exception.

A. It might possibly help deception.

Mr. Butler:

Q. Now, coming down to the particular case, here, hard turkey wheat, without yellow berry, makes a lighter colored flour than the same kind of wheat, containing 35 per cent yellow berry, doesn't it? A. Yes.

Q. If you bleach the flour made from the mixed white, you can make it look like the flour made from the pure wheat, can't you?

A. Looking at the bleached wheat, from the yellow berry, I do not think a person could tell which it was made from.

Q. But, by comparing them, they could, and the bleaching would bring them nearer together in appearance, wouldn't it?

A. Yes.

Q. And to that extent it would be one means of enabling the manufacturer of the flour from the mixed yellow berry to sell it as and for a first quality, pure, hard, turkey wheat flour, would it not?

Mr. Scarritt: Same objection.

The Court: He may answer.

A. I know of no difference between the two, excepting in color.

Mr. Butler: I move to strike out his answer.

The Court: That is not an answer.

Mr. Butler:

Q. You will have to answer that question.

A. Will you please read the question?

(Last question read by the reporter.)

A. Possibly would, if he was disposed to be fraudulent.

Q. Yes, if he wanted to be. Now, a short patent, like a 75 per cent patent, is better than a 95 per cent patent, isn't it, and worth a half a dollar or such a matter more?

A. Yes, it is a better flour.

Q. And sells for more? A. So considered.

Q. And sells for more? A. Yes, sir.

Q. And it is desirable, in the art of milling, to get just as much of this high grade patent as you can? A. Yes.

Q. Isn't that true? A. Yes.

Q. Now, it is lighter in color, isn't it—the short patent? A. It is more of a creamy color.

Q. Yes, but it has a more beautiful color?

A. It has a better color, I said.

Q. A little lighter? A. Yes.

Q. Isn't that right? A. Yes.

Q. Bring them together, they are a little lighter?

A. A little different character.

Q. But, by a light blast, just like a summer zephyr, from an Alsop machine, you can bring them a little closer, can't you, in color?

A. No, there would be the same relative difference. There are different color characteristics as I understand it.

Q. Then, you cannot bleach your 90 per cent patent to look like your 80 per cent?

Q. And you think that if you cut out 15 per cent patent you would be swindling me, wouldn't you? A. I do.

Q. Because I was entitled to all, and you took out the best of it, is that right? A. Yes.

Q. Now, if you bleached what is left—bleached the "Cut straight" you make it look like the straight, don't you, to the untrained eye?

A. If you have the two together, the difference would be noticeable.

Q. If you did not have the two together?

A. I think it would be very doubtful whether a person could detect the difference.

Q. So that the spurious would pass for the genuine?

A. One might be deceived.

Mr. Scarritt: I object to his calling it spurious.

Mr. Butler: It is spurious if it is a cut straight. He says it is a swindle.

The Court: Go on.

Mr. Butler:

Q. Now, if the cut straight was not bleached, it would not look so much like the honest straight, would it?

A. Well, I do not think a person seeing it by itself, could say positively whether it was or not.

Q. No. I mean they would not look so much alike, the bleaching of it down brings the color closer together, doesn't it? That is what it is for, isn't it?

A. It would be whiter. They would be nearer together.

Q. So that to that extent this bleaching helps the miller pawn off the spurious cut straight for the real straight, doesn't it?

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A. No, there would be the same relative difference. There are different color characteristics as I understand it.

Q. Then, you cannot bleach your 90 per cent patent to look like your 80 per cent?

A. Not to make it look the same shade.

Q. Well, you cannot bleach it as white?

A. No, it won't come as white. We never tried excessive bleaching on either one. I did not go to that extent.

Q. Now, do you say that your 92 per cent patent cannot be bleached as white as your 80 per cent, made from this mixed yellow berry that is not bleached?

A. I do not believe it could.

Q. That is not bleached? A. That is not bleached.

Q. Yes, that is not bleached, I say.

The Court: 80 per cent is unbleached.

A. It could not be bleached to the same degree of whiteness.

Mr. Butler:

Q. I am not speaking of that, but you can make it whiter, can't you? A. I don't know.

Q. Now, I am not sure you understand me, and I am going to be sure, and then I will stop. You told Mr. Elliott you made two patents? A. Yes.

Q. You told Mr. Elliott you made all your patents out of mixed yellow berry wheat? A. Yes.

Q. You told Mr. Elliott that bleaching whitened your flour?

A. Yes.

Q. Now, one of your patents is 82 and the other is 95, are those the figures? A. 82 and 95.

1779 Q. Now then, you take your yellow berry, 80 per cent patent, and do not bleach it, and lay it aside in a sack, and then you take your 90 per cent patent and bleach it with your Alsop process, do you say you cannot make the color of the latter lighter than the color of the former? Do you say that, or do you say you do not know?

A. You can make it white. You can make it a chalky white.

Q. And you can make it just about the same color, can't you? A. No, not about the same color.

Q. Can you make them look alike? A. No.

Q. Can you tell bleached flour, by the looks of it, by the color, when you have no standard of comparison?

A. I could not be positive.

Q. Did you ever know a man who could tell a bleached flour by the looks of it, by the color, if he did not have a standard of comparison? A. I have heard that.

Q. But you do not believe that, without a standard?

Mr. Scarritt: That is objected to.

Mr. Butler:

Q. Can you tell it by any means? Can you tell bleached flour by any means, from another?

A. Yes, by placing them together.

Q. I have some samples here, and without knowing either is bleached or not, can you tell which is which, or whether either is bleached?

A. If I knew they were made in the same way.

Q. I know, but go out in the market and bring you in two samples of flour, and you would slick them down, and lay them side by side, can you tell me whether one is bleached or whether both are bleached, or whether either one is bleached?

A. I might be deceived on that.

Q. There is no known methods even for experts to tell, is there, either by looking, or tasting, or any other way?

A. I have heard men say they could, by their judgment.

Q. Can you? A. I would not say I could.

Q. Neither by chemistry or by any other way that you have ever heard of can you tell the difference, isn't that true?

1780 A. Merely a question of a man's judgment, I believe.

Q. Now, that being true, do you say that color, after bleaching, is of any value, as an index of quality?

A. Yes, I think as much as before.

Q. Was it ever any? A. Yes.

Q. Before this bleaching commenced, then, color was the one thing that practical men looked to, wasn't it? A. No.

Q. Well, it was the principal thing?

A. Not by any means.

Q. What was the other thing?

A. There was the texture of the flour, the strength of the dough, is of very great importance.

Q. I mean the consumer.

A. Oh, the consumer doesn't look or inquire about the color at all.

Q. Don't care, do they? A. No.

Q. Never did?

A. They wait until they bake it up. Never did care about that.

Q. And don't yet? A. It is the bread they are after.

Q. They don't care yet? Can you tell bleached flour bread from another bread? A. I don't know that I could.

Q. Don't you know that Mr. Larabee can, by modern milling, make flour out of the same wheat this Lexington man, Leflang, has whiter and better in color by honest milling methods than the Lexington man can by his method and the Alsop bleacher added together? A. No, I do not know.

Q. Don't you know as a miller that good machinery, good milling, great cleanliness and great care, will make whiter flour than the contrary? A. Yes.

Q. Don't you know that the bleacher will bleach flour wherever it finds it? A. Yes.

Q. Or however it is made? A. Yes.

Q. Don't you know that it is, and can be used on any flour, unless foreign matter is in the flour?

A. No, I think it will not improve poor flour.

Q. I think it will not improve any, but it will make poor flour white, won't it?

A. No, not if it is made from inferior wheat, it will not.

1781 Q. I mean, if there are no impurities, no bran, or foreign substances?

A. Then you would have a most excellent flour.

Q. Yes, sir. A. You would have a short patent.

Q. Now, it is true, isn't it, that some wheats make much better flour than others? A. Yes.

Q. When they are all clean? A. Yes.

Q. Now, isn't it true, that the whole scheme of bleaching is being used by incompetent millers as a prop for poor milling methods, whereas, if they would improve their mill, they can mill white flour? A. I do not think so.

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

The Court: He has answered, and the answer may stand.

Mr. Scarritt: We except.

Mr. Butler:

Q. But you do know that good milling methods will make good flour and white flour, without a bleacher?

A. It will not make white flour from all kinds of wheat.

Q. No, but a bleacher will make white flour from all kinds of wheat, won't it? A. Where he uses good wheat.

Q. Yes, but it will make them all look alike, won't it?

A. It whitens them more or less, I believe.

Q. Brings their appearance all together, so that an expert cannot tell which is which?

A. No, it does not bring them all together.

Q. Nearer together?

A. Well, on some wheats, it has a poor effect. Some flours, I should say.

Q. What wheat? A. Some flours.

Q. Well, I mean flours from what wheat?

A. From any wheat.

Q. Doesn't it improve the gluten and the dough of all flour?

A. I think it does. It does with the patents, I know. I have not experimented with the other.

Q. And it does with the clears?

A. Presumably it would with the clears, but I never tried it.

Q. It must come pretty near it, when it will improve a 95 per cent patent?

1782 A. It would seem so.

Q. It would seem that it ought to help a 30 per cent clear, then, wouldn't it? A. Yes.

(Recess was then taken for five minutes.)

By Mr. Butler:

Q. Before the bleaching came into effect, did you ever notice the smell of nitrogen peroxide gas about your bin, just before it packs? A. No, I never did.

Q. Did you, since? A. No.

Q. Do you smell anything?

A. I do not smell any odor of gas about the mill.

Q. I mean, in this bin.

A. In the flour bin?

Q. Yes.

A. I have tried to smell it on the flour, as it comes out of the bin into the packer, but there is no evidence of odor, there.

Q. Did you ever notice that there was an odor to this Alsop process, at all, any way?

A. Not unless I open a valve on a pipe where the gas is.

Q. Have you done that? A. Yes.

Q. And you do smell it?

A. Oh, it has an odor, yes.

Q. Did you ever notice, since you commenced it, the yellow flour adhering to the walls of the bin, as was described by Mr. Edgecomb, in his mill?

A. No, I have never looked inside of the flour bin.

Q. Never took any pains to clean off that yellow flour, if any gathers there in your mill?

A. I do not think any gathers there. I have never found any.

Q. Well, you never looked for it?

A. It would have come down in the flour, out of the bin, if there had been any.

Q. Oh, yes. So, you never looked at the walls of the bin, but you think there wasn't any, or you would see it in the sacks? A. Yes.

1783 Q. You are very sure that, if any does gather on the walls, it comes down into the sacks? A. Oh, yes.

Q. So, the idea that it adheres to the wall, until you sweep it off, does not agree with your views?

A. I will have to amend that. I do not know, really, because I never have looked any.

Q. You would not like to put it in the other fellow's sacks, would you?

A. I really don't know whether it sticks, or comes down. I have never known of any to come down.

Q. Do you use some oil on your rollers?

A. Yes, on the bearings.

Q. When the same kind of oil, in fine dilution, or disintegration, comes onto flour, have you noticed what color it changes the flour?

A. No, I have not.

Q. Now, if this machine oil that you use to oil your rolls, up somewhere in the vicinity of where you used to see this yellow flour, before you commenced to bleach, was put on flour, what color do you think it would be?

A. If the oil was put on?

Q. Yes.

A. Well, the oil is much darker than a yellow color.

Q. What color do you think just a little oil from around the bearings would have on flour?

A. I would not like to say, without having some knowledge of it.

Q. Do you think it would be yellow?

A. I could not say. I think the oil would color it a deep yellow, or yellowish green.

Q. What color is the oil?

A. It is—oh, sort of a—I should say a combination between a yellow and a green and a black.

Q. There is yellow color in it?

A. Yes, there is some yellow color in it, I should say.

Q. An oily, yellow color?

A. Yes. Not distinctly, but such a color—such a shade as you would think those three colors, mixed together, would make.

Q. You think that might possibly, in very thin dilution, discolor the flour some, and make it look a little yellow?

A. If it came in contact with the flour, it would discolor it.

Q. How often do you clean out that yellow flour that comes up in the mill? A. In these roller frames?

1784 Q. Yes.

A. I do not know how often it is cleaned. There is very little accumulation there now, because of different arrangement for taking it off with air.

Q. How often do you clean out the agitator?

A. I could not say.

Q. Is it ever cleaned out?

A. In fact, I do not know that. All parts of the mill that need cleaning, are cleaned.

Q. So, you understand, or do you know?

A. Yes, those are my orders.

Q. Yes, I know, but I give a lot of orders that they do not follow, in my shop.

A. I believe they are in this case, because I have a superintendent to follow it up.

Q. You hire a man to watch them? A. Yes.

Q. Suppose the agitator is about the shape of this jar (referring to an exhibit). Do you know how close the fans come to it? A. No, I do not know how close.

Q. Never saw that agitator, inside?

A. Yes. I saw it when it first came, but I do not know what distance it was.

Q. Suppose yellow flour, that will be turned yellow by five hundred minutes of exposure to this gas in there, adheres to that, what means have you taken, even by orders, to keep that yellow flour out of the food?

A. I have given no definite orders respecting that, and I do not know whether it would remain there, or whether it would drop down. It is something like the flour bin.

Q. How is that?

A. I will have to give the same answer as I did about the flour bin. I do not know whether it would remain there, or whether it drops down, or whether it forms there.

Q. What definite orders have you given to keep the yellow flour that gathers, if any, in your spouts?

A. I have given no orders, especially, respecting yellow flour, but to keep all parts clean, that need cleaning.

Q. And what means your millers take to do that, you do not know, except you assume your orders are carried out?

A. Yes, that is all.

Q. That is, while you have no personal knowledge of it, you assume that, if the yellow, xanthoprotein poisons
1785 flour, does accumulate in your agitator, that your millers take appropriate steps to keep it out of the flour?

Mr. Helm: We object to that. He does not assume anything of the kind, as I understand your question. You assume that he does.

The Court: He may answer.

Mr. Butler: I think Mr. Helm misunderstood the question, Mr. Witness, but I have no doubt you understand it.

A. Yes. I assume and believe that all parts that need cleaning are cleaned, sufficiently often.

Q. Including this yellow stuff, if any, which gathers on the inside of your agitator, where the bleaching is done?

A. If any.

Q. Yes, if any. A. Yes.

Q. And from the walls of the bin, if any?

A. If any, yes, sir.

Redirect Examination

By Mr. Elliott:

Q. Do you get the same price for your clear, bleached or unbleached? A. Yes, we get the same price.

Q. How do you sell your clear?

Mr. Butler: That is objected to as irrelevant, immaterial and not redirect.

The Court: He may answer.

A. Clear is sold usually by sample.

By Mr. Elliott:

Q. You sell your patents under a guarantee to give satisfaction? A. Yes.

Mr. Butler: Wait a moment. We object to that, as irrelevant and immaterial.

The Court: Yes, that is sustained.

By Mr. Elliott:

Q. Aside from bleaching, I will ask you, in your judgment, if a consumer could tell a cut straight from a full
1786 straight.

Mr. Butler: Objected to as irrelevant and immaterial.

The Court: He may answer.

A. No.

By Mr. Elliott:

Q. Do you make either a full straight, a straight flour, or a cut straight flour? A. No.

Q. You do not make either one? A. Neither one.

Q. Now, I will ask you if such a wheat as you have testified to grinding, containing say thirty-five per cent of yellow berry, is, in fact, a first quality, hard wheat.

Mr. Butler: Objected to as not redirect.

The Court: He may answer.

A. Yes.

By Mr. Elliott:

Q. And is it so rated in the markets, in Nebraska and in Kansas City both? A. It is.

Q. Mr. Butler asked you if you had a flour free from impurities, if you could not bleach it, and improve it. I will ask you if you have a flour that is free from impurities, if you have got a high grade of flour. A. Yes.

Q. I will ask you if there is the same relative difference in the grades of flour which you make and bleach, after bleaching as there is before bleaching.

A. Yes. The difference is the same—same relative difference.

Recross-Examination

By Mr. Butler:

Q. Mention two flours, neither one of which is wholly disreputable, that an ordinary consumer could distinguish between.

Mr. Scarritt: Bleached or unbleached?

Mr. Butler: I do not care.

A. Well, I should think an ordinary consumer could distinguish between a first patent and a clear.

1787 Q. If bleached? A. Yes.

Q. How? A. By the difference in the look of it.

Q. Difference in the look? A. Yes.

Q. One looks like a creamy, natural color, and the other looks like a dead color?

A. The one has impurities and specks in it.

Q. Can you tell? A. Yes.

Q. Unless either has impurities and specks?

A. I never saw a clear grade without.

Q. You never saw a clean clear flour? A clean, clear grade of flour? A. Not that is called clear grade.

Q. You never saw that, in your line?

A. What is called clear grade is not as clear in appearance as the patents, you understand.

Q. Is that the reason it is called clear, because it has dirt in it?

A. I haven't the slightest idea. I have always considered it a misnomer.

Q. Then, we are to understand that the word "clear flour" has a definite meaning in the markets? A. Yes.

Q. That is, a flour having dirt in it?

A. That is not the chief characteristic. I should not describe it in that way.

Q. But, that is the way the consumer can tell it?

A. It has more of the bran and [crease] dirt in the wheat.

Q. So, the way a consumer can tell a clear flour, is, because it has dirt in it?

A. Yes. Foreign matter, I should think.

Q. Now, mention two flours, neither one of which has dirt in it, that the consumer can distinguish between.

A. I do not think a consumer could distinguish from the appearance of the flour, between a long patent and a short patent.

Witness Excused.

F. D. Larabee, called as a witness on behalf of the claimant, being first duly sworn, was examined by Mr. Elliott, and testified as follows:

Direct Examination.

- Q. Where do you live? A. Hutchinson, Kansas.
 Q. What is your occupation?
 A. Well, I am the president of the Larabee Flour Mills Company. Have the management of the business.
 Q. How many mills have you, Mr. Larabee?
 A. Two. One at Hutchinson, and one at Stafford.
 Q. What is the capacity of the mill at Hutchinson?
 A. Eleven hundred barrels.
 Q. And at Stafford? A. Five hundred.
 Q. So, you have a daily capacity of sixteen hundred barrels of flour per day? A. Yes, sir, that is right.
 Q. What grades of flour do you make?
 A. We make three grades of flour. One, which would approximate ninety-two per cent, and one, one hundred per cent, and then the eight per cent which is left when we are making the ninety-two per cent grade, but, in making all of these grades, I base the percentages on approximately three per cent low grade, always being taken out.

By Mr. Butler:

- Q. So that would be ninety-two per cent of ninety-seven?
 A. Yes, two per cent left, and this low grade we run to our feeds, and do not figure as flours. That is the reason I gave the percentages that way.

By Mr. Elliott:

- Q. What grades do you bleach?
 A. We bleach the ninety-two per cent, and the one hundred per cent.
 Q. What is your first grade? What do you name it?
 A. "Empress".
 Q. Your first one? A. "German Mill" flour.
 Q. How is that branded?
 A. That is branded "German Mill Flour".
 Q. What is the other flour branded?
 A. "Empress Flour."
 1789 Q. Your Empress flour is what per cent?
 A. One hundred per cent.
 Q. And your ninety-two per cent flour is called what?
 A. "German Mill."
 Q. Do you use the word "Patent" on your sacks? A. No.
 Q. In what sections of the country do you sell your flour?

A. Well, we sell our flour from coast to coast, but the largest proportion of it is in the Southwest, and the Southeast—the Pacific Coast.

Q. Do you sell any in the state of Missouri? A. We do.

Q. To what extent? How much?

A. I should roughly say fifteen per cent.

Q. Is there any difference in color between your one hundred per cent flour and your ninety-two per cent flour?

A. There is. The ninety-two per cent is a little whiter than the one hundred per cent.

Q. Now, suppose you bleach those two flours. I will ask you if there is the same relative difference between them, after you have bleached them as there was before you bleached them? A. Yes, there is.

Q. Do you use an Alsop bleacher? A. We do.

Q. What kind of wheat do you grind?

A. We grind principally Number 2 hard winter wheat.

Q. How much does that weigh?

A. Fifty nine pounds or better to the bushel.

By Mr. Scarritt:

Q. Kansas wheat you mean? A. Kansas wheat.

By Mr. Elliott:

Q. Do you get any Number 1 wheat for grinding?

A. No. No Number 1.

Q. Have you ever detected any foreign odor in flour that has been bleached by the Alsop process? A. No, I have not.

Q. Have you ever noticed any color in the gas coming from the Alsop machine? A. No.

Q. Have you ever had any dough balls in your mill? A. Yes, I think they do, in milling. I think there is occasionally dough balls get into the rolls.

Q. Into where? A. Into the rolls.

Q. What becomes of them?

A. They are either ground out, or thrown off, and bolted out.

Q. Bolted out? A. Bolted out.

Q. Have you ever noticed any pressure in any of the pipes connected with the Alsop machine? I will ask you is there any pressure in those pipes?

A. Oh, no. Just the pressure that would come from a slight draught, going through the pipe, if you could call that pressure.

Q. In the conditions of bleaching, as they exist with you, with the pump connected with the Alsop machine, the pipe leading into the agitator, and a hole in the agitator through which the flour goes down to the packer, and what remains, in your judgment, could there be any pressure in there?

A. No, I do not think there could. Not in the pipes.

Q. What percentage did you make your "Empress" flour, before you began to bleach?

Mr. Butler: I think we will object to that as irrelevant. It is not connected with this case at all.

The Court: He may answer.

A. One hundred per cent. The same as we did afterwards.

By Mr. Elliott:

Q. You make no difference in the percentage, when you use the bleacher? A. No, sir.

Q. How long have you been in the mill business?

A. Between eleven and twelve years.

Q. How is it that you are enabled to make what you term one hundred per cent flour?

A. We can make that flour on account of a perfectly equipped mill, or as perfectly equipped as we know how to do it.

1791 Q. Just tell us, in a word, how that equipment is different from an ordinary mill.

A. It is a long system of milling.

Q. What you term a long system? A. Yes.

Q. Now, tell us what the difference is between a long system of milling and a short system of milling.

A. In the first place, we have more breaks for the wheat.

Q. That is where the wheat is crushed?

A. Where the wheat is crushed, where we try to separate off the bran, and the shorts from the flour making parts.

Q. Now, how many breaks as a matter of fact, have you?

A. Eight.

Q. Now, how would that number compare with the ordinary mill. A. I should say ordinarily it is double.

Q. Double the number of breaks?

A. I should say ordinarily.

Q. Now, go on and explain this long system of milling.

A. After the-breaks, we grade all of our stocks carefully, before coming to the next reductions, and we separate every reduction into a fine, and a coarse separation, and grinding the fine brand, and purify the fine and coarse stock separately. We feel by doing this that we get an accurate grind to each kind of stock, and it enables us to adjust the rolls to the particular stock. This handling allows us to keep the impurities out through the whole process of milling.

Q. Now, does that process differ, where you are making one hundred per cent patent, from a system in which, for instance, a miller was making seventy-five per cent grade, which he called his patent flour, and twenty-five per cent clear—the rest low

grade. Now, does that system differ from one in which the miller would simply add that clear to that patent, to make a straight?

A. I should say that it would differ from it, and that we retain the good qualities of the wheat berry; by handling the stocks very gently.

Q. If I understand you, does that mean that some of the first quality wheat—some of the best of the flour in the wheat, if I may so put it, will appear down at the lower end of the mill, just as that may appear at the head of the mill, something of that kind?

1792 A. Something that way. It is by careful handling of our stocks that we preserve their integrity throughout the mill. If you are obliged to grind them fast, or put them through the process quickly, you cannot take the care that is necessary to produce the highest quality.

Q. Now, I will ask you, as a matter of fact, if a flour milled as you are milling it, being one hundred per cent, compares in quality with some other mill's seventy-five per cent patent, for instance.

A. We guarantee it to be just as good, so far as giving satisfaction to the trade is concerned.

Q. Now, assuming the ability of the miller, such as in your mill, to get from the wheat all the possible flour content, that a perfected milling system will render possible, I want to ask your opinion as to the value of that flour content? Is it equally valuable, if you can free it from impurities?

A. I think it is.

Q. Have you any knowledge as to whether different mills throughout your section of the country, at least, make the same patent flour—same percentages and qualities, and things of that kind? A. That we do?

Q. Oh, no. Is there any uniformity?

A. No, I do not think so. I think each mill has a standard of its own.

Q. How much red turkey wheat would you say is obtainable during the course of a year, for grinding?

A. That is so small a quantity that it would be hard to estimate it, but I doubt if we would get one per cent.

Q. I did ask you the kind of wheat you grind, did I not?

A. Yes.

Q. Now, I will ask you how long you have been using the pipes and hose, if you have any, in your mills.

A. About two years.

Q. Is that the same in both mills?

A. It is a little bit longer in one. Perhaps six months longer in the Stafford mill, than in the Hutchinson mill.

Q. I have a notation here, three and one half years in one and two in the other.

A. A number of pipes in the Stafford mill have been in longer than that. The mill burned, and part of the pipes
1793 were not changed.

Q. I will ask you how long were they in there before the mill burned.

A. My recollection would be around three years.

Q. Now, just let us assume that you could get this one per cent of turkey wheat. I will ask you, as a practical miller, if it would be feasible, for you to use it.

A. No, I do not think it would be feasible. You mean to use it by itself alone?

Q. Yes.

A. I do not think it would be feasible, because it would not be a flour that we could make a standard.

Q. Just explain why.

A. It would make a different color of flour than the flour that we ordinarily are able to get from such wheat as we can obtain.

Q. That is, if I understand you, you grind that all up together, and you could not get any more wheat to duplicate the flour? A. No.

Mr. Butler: Did he finish his answer?

Mr. Elliott: I believe he did.

By Mr. Butler:

Q. Did you finish, before you were interrupted?

A. I think I did. I am not sure.

By Mr. Butler:

Q. You were telling us that it was making a different kind of flour.

A. Well, it would make a different kind of flour. I think it would make a flour that would be a little lighter in color, would be my opinion.

By Mr. Elliott:

Q. What would you say as to the possibility of any of the yellow flour you have heard so much about, getting into your flour?

A. Oh, I do not think it would be possible. In fact, I have never known it to happen, as long as I have been milling.

Q. I will ask you if you, before adopting the bleaching process, or afterwards, made any experiments in bleaching flour, and if so with what and with what results?

A. Yes, we did, when we first learned of bleaching. I
1794 experimented some with electricity, and the experiment I made was by enclosing two—

Mr. Butler: (interrupting) I think we will object to this as irrelevant and immaterial. It is not related to this process, I suppose.

The Court: I do not know what kind of gas it produced. We will hear him.

Mr. Butler: Did it produce NO₂?

Mr. Scarritt: No.

A. (continuing) I enclosed two arc lamps, with a Russian metal hood, leaving openings at the top and bottom, and the lower opening I connected to a small Buffalo fan, thus drawing the air through the top, and down, and discharging it at the bottom.

Mr. Butler: Just a moment. I hope we do not find it necessary to investigate other methods of bleaching. This is an experimental matter.

The Court: I do not know what its purpose is, or what gas is produced. We will see what will come of it.

Mr. Butler: Unless it is related to this, I hope Mr. Elliott will not oblige me to go into it, because we have so many systems, now.

The Court: Go ahead.

A. (continuing) And, with this air, or gas, I could bleach flour.

By Mr. Scarritt:

Q. How is that?

A. With this air or gas, I could bleach flour.

By Mr. Scarritt:

Q. That is coming through that? A. Yes.

By Mr. Elliott:

Q. Was that the ordinary arc? A. Ordinary arc lamp.

Mr. Elliott: I just thought it might make it a little clearer.

Mr. Butler: I move to strike out the testimony as irrelevant and immaterial, and not having any connection with the case at all.

The Court: I will see what becomes of it. It may stand for the time being.

By Mr. Elliott:

Q. I will ask you if you use bleached in your own family.

A. I do.

Q. I want to also ask you this question: do you regard a yellow color in flour as a defect?

A. Yes, I do. It is an advantage to remove it.

Cross-Examination

By Mr. Butler:

Q. Mr. Larabee, it is my information that you are one of the gentlemen in charge of the defense of this law suit.

A. Yes, sir, I am one of the committee from Kansas.

Q. Now, I do not ask you that, to twit you, or anything of that sort, but simply that we may have an understanding at the outset. A. Yes, sir.

Q. You want to win the law suit? A. I certainly do.

Q. And you are very much in earnest about that?

A. I would not be here if I was not.

Q. You have no interest in the mill at all?

A. I beg pardon?

Q. You have no interest at all in the mill that made this flour that is seized? A. No, sir.

Q. You do not know anything about how it was made?

A. No.

Q. Or whether the Alsop process was properly used, or abused? A. Never even saw the flour.

A. And you do not want to be understood now, by what you have heretofore said, as being so partisan that you cannot answer me fairly, and with that high degree—

A. (interrupting) I will try to answer fairly, Mr. Butler.

Q. (continuing) And that high degree of intelligence that comes from your experience. Now, Mr. Larabee, you
1796 are also a stockholder in the Alsop Process Company?

A. No, sir.

Q. Are you financially interested in it in any way?

A. No, sir.

Q. Did you patent your process?

A. Yes. We patented our process.

Q. Did the Alsop Company sue you for an infringement, and make you quit, and take you over?

A. We sold to them.

Q. They wiped you out on the ground that the electric arc put NO₂ in the air, too, didn't they?

A. Yes, we went out of business.

Q. That was because their patent gives them a monopoly on the use of NO₂ for bleaching flour?

A. I do not know about that.

Mr. Elliott: I object to this, Your honor. This witness does not know anything about that. It is not true.

Mr. Butler: It is not true?

Mr. Elliott: Will you please understand me, Mr. Butler. The Andrews patent is the patent that you are thinking of.

By Mr. Butler:

Q. Now, did the Andrews patent, owned by the Alsop Company claim, in this controversy about the infringement, that your NO2 was an infringement upon their right, because the Alsop Company, as the owner of the Andrews patent, and of the Alsop patent, had a monopoly on NO2?

Mr. Helm: We object to the question as incompetent and immaterial, and the only purpose, that I understand, in asking these questions is to show the interest of this witness in the Alsop Process Company. He has answered that they sold this patent to the Alsop Company, and have no interest in it whatever. Now, isn't that the end of it?

The Court: I do not know what their contract was or anything about it.

Mr. Scarritt: That is what he said it was.

Mr. Helm: That is what I understood the witness to say is the situation.

1797 The Court: Of course, you and I and everybody have read the litigation between the Andrews, the English patent, and between Alsop, the American, in their round-up with Frichet, the Frenchman.

Mr. Helm: My understanding is, Mr. Larabee sold whatever interest he may have had in this Alsop Company.

The Court: Yes.

Mr. Helm: They bought him out.

The Court: Yes.

Mr. Helm: He now has no interest in their company.

The Court: And Andrews, the Englishman, sold to the Alsop people.

Mr. Helm: I suppose he has no interest in this law suit.

Mr. Scarritt: This is a question of the interest of this witness.

The Court: That is the condition of history, isn't it?

Mr. Helm: I understood Mr. Butler's questions to be to test the interest of this witness, in this litigation.

Mr. Butler: No. They dragged in another bleaching process, and we had a good deal of testimony about the bleach-

ing of flour, and the kind of bleaching, without identifying the process, and I am going to show that they are all babies of the same family, every mother's son of them, and it is NO2.

The Court: Go on.

By Mr. Butler:

Q. Now, Mr. Larabee, the Alsop Company put your process out of business, either by suit, or some claim of infringement upon the claim that you employed the same medium for bleaching, that they did, namely, NO2?

A. No, Mr. Butler: I never heard of NO2. I am not a chemist.

By the Court:

Q. Well, nitrogen peroxide.

A. Well, that I don't know, Judge.

By Mr. Butler:

1798 Q. The same gas.

A. They claimed that we were infringing on their process, and we finally decided that it was the better thing to do to sell out to them, but this was before they acquired the Andrews patents.

Q. You are familiar with the Alsop patent? Did you ever see that. A. No, I have never seen that.

Q. That patent says they use NO2 to bleach. Do you know whether that is so or not?

A. No, I do not.

Q. You know they use some kind of gas?

A. I know we get a gas, there, that bleaches the flour.

Q. Is your company, or your family, or relatives, interested, in any way, in the Alsop Company? A. No.

Q. Have you no financial interest in that company?

A. I think not.

Q. Are you pretty clear on that?

A. I am pretty clear on that.

Q. You are not the only Larabee connected with this milling company? A. I have a brother.

Q. Now, are you clear that neither your company, nor any one of your company, or firms, has any financial interest in this company? A. Yes.

Q. How long have you made this brand called "Empress"?

A. Mr. Butler, I have made that ever since I have been connected with the mill?

Q. How many years?

A. That has been eleven or twelve years, and the brand was started when the mill, which we acquired by purchase, was started. We inherited the brand.

Q. Where did that brand find its market? Where does it?

- A. Where does it?
 Q. Yes.
 A. We sell that brand all over the country, and export it.
 Q. You think it is a good flour, don't you?
 A. I know it is a good flour.
 Q. You think you have a good mill, Mr. Larabee, don't you?
 A. Yes, I think that, too.
 1799 Q. You think good milling makes good flour, don't you?
 A. Bound to. Good milling makes good flour.
 Q. And, other things being equal, it makes whiter flour?
 A. Yes, sir.
 Q. Your one hundred per cent, which is, in fact, ninety-seven per cent of the whole—
 A. (interrupting) Well, if you call the low grade flour. We do not call that flour. We call that feed.
 Q. I am glad you put it that way. Your one hundred per cent, as you call it, you believe to be better than a great many seventy-five per cent patents, made out of the same kind of wheat?
 A. Well, I have gotten an inclination to feel that way.
 Q. You know it, don't you?
 A. I know I have got a good flour that will compete with any of them.
 Q. You think your one hundred per cent patent, by reason of your milling methods, is better than most of the seventy-five per cent patents on the market, of the same wheat?
 A. Well, I would not say that I know that, but I know I put my flour in competition with any man's flour.
 Q. And you win in the competition?
 A. I stay with them.
 Q. And your price gets so high that Mr. Hohengarten had to buy other flour?
 A. Now, since you have brought that up, Mr. Butler, may I explain it?
 Q. No.

Mr. Scarritt: Sure.

- A. The bakers, as a general rule, buy flour where you have stronger competition. In other words, more millers are working for the bakers' trade. The family trade is harder to get, and we cater to the family trade. At the time Mr. Hohengarten stopped buying flour from us, was simply due to the fact we could sell to other markets for better money.
 Q. The price was too high for him.
 A. The price was too high for him.

Q. So, you could not only compete with the other flours, with the shorter percentage of patent, but you can
1800 select your trade?

A. No, I cannot do that, but I can compete with them in price, too and I can get my flour in to the trade.

Q. There was very good milling done before NO2 was used to bleach flour, wasn't there?

A. Oh, I think we did good milling years ago.

Q. Good milling? A. Yes.

Q. The Empress was a good flour then?

A. The Empress was a good flour then, but we have improved it since, and we improve it continuously.

Q. And you have improved your mill, since?

A. Certainly, yes.

Q. You are spending lots of money, buying the best machinery abroad and at home that money will buy?

A. Yes, sir.

Q. And you have a concrete mill?

A. A concrete mill.

Q. That the weevil won't come into? A. Well—

Q. (interrupting) They don't do it?

A. They do not.

Q. They stay out, and you keep it clean, don't you?

A. Certainly.

Q. And you keep your flour clean, don't you?

A. Yes, sir.

Q. And you do not abuse the bleaching process, do you?

A. No, I do not think we do.

Q. How many horse-power do you use to make one hundred barrels?

A. Mr. Butler, I am not posted on figuring electrical current in horse-power.

Q. By kilowatts, then.

A. I can tell you in amperes. To bleach eleven hundred barrels, we use approximately, as I remember it, three amperes.

Q. Three amperes? Your voltage is five hundred?

A. Five hundred volts, yes.

Q. You know they use three amperes and five hundred volts to bleach one hundred barrels a day, did you?

A. We never had a hundred barrel mill, since the bleaching process came into operation.

Q. At that rate, I mean. A. No.

Q. You have given me your maximum rate?

A. Well, I think that, Mr. Butler, now, that is just my recollection of it. I haven't looked it up.

1801 Q. Yes. I am not binding you to that.

A. I think that is what we use.

Q. I know that a man of your affairs cannot have all these details in mind, and I did not intend ever to impliedly criti-

cise you for it, but your understanding is you have five hundred voltage and three amperes, to bleach eleven hundred barrels a day?

A. I think that is approximately correct, yes, sir.

Q. And you never did use the bleaching medium any thicker than that? A. We use substantially the same.

Q. That is to say, all the time?

A. Yes, practically all the time.

Q. In all seasons of the year, and from one year to another? A. Yes.

Q. And that is light bleaching, isn't it?

A. Well, I don't know. I am not sure.

Q. That is your bleaching, isn't it?

A. That is our bleaching.

Q. Is color an impurity?

A. No, I do not think so. We get a very clear, well dressed flour, apparently free from impurities, which is yellow in color.

Q. The coloring substance is found normally in the wheat kernel, itself, isn't it? A. I should think so.

Q. Well, you know that, don't you? You know that, right in the heart of the wheat kernel, there is some, and all through there is some. I do not mean in the same degree.

A. Oh, no, I understand.

Q. But in varying degrees, as you go up to the bran.

A. I imagine it was something like that.

Q. Now, a short patent is usually the middlings?

A. Yes. They usually take what they call middlings stock.

Q. And that comes from relatively near the center? Just to illustrate my point, what I am getting at is this: if there is a short patent, under ordinary milling methods, such as commonly used, we will say, for the purpose of illustration, only fifty per cent patent, roughly speaking, that would be from the middlings, near the center of the kernel?

A. I think the middlings nearer the bran would be harder to keep the impurities out of.

Q. Now, as you lengthen your patent, the color usually increases? I am not speaking of your mill, particularly?

A. I understand.

Q. But generally, in the milling operation.

A. Yes, it gets a little darker in color, the longer the patent.

Q. So, your short patent—you have one short?

A. Yes, about eighty per cent.

Q. And that is a little lighter in color? A. Yes.

Q. Would not be observed, unless you brought the two together?

A. I doubt very much if I could tell them separately.

Q. But you could, if they were put together? A. Yes.

Q. Now, if you bleach the long, and did not bleach the other, could you bring the long one to a lighter color? I do not mean the same color, but a color as light or lighter?

A. I think you could probably make it a lighter color, but there would still be a difference in color.

Q. The bleaching color is not a natural color—not the same as the natural color?

A. Well, now, I don't know, but what if flour was aged long enough, it would reach practically the same color as bleaching.

Q. No, but I am speaking now, from general observation. As the thing is handled, it is not identical? I got that impression from other witnesses?

A. I guess I do not understand your question.

Q. My point is this: Some witnesses, called by the side of the case that you are on, gave me the impression that, while it might be lighter, it is not just the same color.

A. As the unbleached?

Q. Yes. A. Oh, no. There would be a little difference.

Q. But, in the unbleached, there is that creamy color?

A. Yes, it has a little creamy shade, what you would call it.

Q. Now, have you observed whether or not your wheat—you, of course, concede what has been said so often here, that natural aging improves the quality of flour? I am not speaking of color.

A. I think that flour naturally aged would work better in the dough, than flour freshly milled.

1803 Q. Generally speaking—I am not going into the whys and the wherefores but the fact is it is better flour?

A. We always thought this, if we can age flour before we put it on the market, it is more sure to give satisfaction.

Q. Now, I want to find out from you, Mr. Larabee, whether or not flour, after you have bleached it, improves with age.

A. Well, Mr. Butler, my opinion would be that there might be some improvement but not as marked as in the unbleached flour. Now, how much that improvement might be, I do not know.

Q. Of course, those are very hard things to define in words?

A. Of course, they get rather delicate, too. The question of comparing flour a month old to one three months old, is a delicate one, and I would not be competent to do that.

Q. You cannot say then, that any degree of bleaching is the equivalent of any degree of aging?

A. I think our observation has been that to bleach our flour will insure its giving practically the same satisfaction as flour from thirty to sixty days old.

Q. But, unbleached flour improves for a period much longer than that?

A. Well, that might be. I have never made any tests along those lines, because we seldom keep flour any great length of time.

Q. Never did, either, did you? A. Never did.

Q. Keep it a great length of time?

A. No. No great length of time.

Q. Long before this bleaching commenced, it was your practice to unload your product right along?

A. Before bleaching commenced, Mr. Butler, we used to carry over—we were obliged to carry over large stocks of old wheat, to tide us over.

Q. I was speaking more particularly of the flour. As to whether you carried flour in stock?

A. Not as a usual thing, no.

Q. That was the practice of your mill, and the practice of mills generally; long before the Alsop bleaching business was introduced to get rid of their flour very soon after milling?

A. The sooner a man can turn his product, the better the profits are.

1804 Q. And they get rid of it very soon—in a week, or three weeks, on an average?

A. I can only speak for ourselves.

Q. That was the fact, wasn't it?

A. Yes, we usually got rid of it in that time, I should say.

Q. So, before the bleaching commenced at all, it was your experience, and, as far as you know, the experience of mills generally, that they got rid of their product in a week or two or three?

A. The fact of it is Mr. Butler, most of our flour is loaded right into the car from the factory.

Q. And always was? A. And always was.

Q. And that was the truth, long before the bleaching, with yours and other mills, so far as you know? A. Yes, sir.

Q. The ordinary consumer could not tell your long patent from your short patent, if neither was bleached, in all probability, could he?

A. Well, there would still be that difference in color.

Q. I know, but seeing them separately.

A. Oh, seeing them separately?

Q. Yes.

A. Well, it is a question in my mind whether they could or not.

Q. You could, yourself? A. I doubt it.

Q. Nobody could, probably?

A. I might, if I happened to, but I could not—

Q. (Interrupting) Now, I want to ask you this, by reason of your candor and great interest in this matter, if you know what a cut straight is, in the first place.

A. Yes, I know what millers term a cut straight, and I think I know the man that originated the phrase.

Q. We don't care about that.

A. It has only been in use a limited number of years.

Q. Now, to sell a cut straight for a straight, is a cheat, isn't it?

A. Well, Mr. Butler, now, in selling cut straights, my experience has been that they are usually sold on sample.

Q. Well, I know, but that is not responsive to the question.

Mr. Scarritt: Let him answer.

1805 Mr. Butler: I know, even if this gentleman is paying you, he is not entitled to talk, except in response to my questions.

Mr. Scarritt: Why, certainly, he is.

A. I think I understand the question. If a man—

By Mr. Butler:

Q. (Interrupting) I asked you, to sell a cut straight—

A. (Interrupting) Let me make my answer.

Q. Here is my question. A. Yes.

Q. Do you think that, to sell a cut straight as and for a straight is a cheat?

A. A man that would do that is misrepresenting, certainly.

Q. Yes.

A. Yes, sir, he is. Now, if you will let me explain why it is a cheat, or why not a cheat. I think it is all in how it is sold. If I had a request for that kind of flour, and I sold it I would not think it a cheat, but, if I would sell a cut straight, and represent it to be a straight, that would certainly be misrepresenting.

Q. I am not implying, Mr. Larabee, and have nothing in mind as to any such practice claimed against your concern at all. Not at all. A. I understand.

Q. I am just seeing what you think of these things. Now, if you were to take a straight grade of flour, made from old wheat, and new wheat mixed and add to that a clear, made from some other flour, of fifteen per cent, and bleached it to make it look white, and sold it as and for a high patent, whether or not that is not a cheat, deception, and a fraud?

A. That is not a reputable thing to do.

Q. That is a bad thing? It is a swindle on its face?

A. Yes, sir. I would not do it.

Q. Now, is it not by means of the bleaching process, or any other device, a deception, misrepresentation and a fraud, to sell the inferior flour from one wheat as and for a flour made from a better wheat?

Mr. Scarritt: We object to that, incompetent, irrelevant and immaterial, and invading the province of the jury, asking the witness to decide the very question the jury is to decide.

The Court: On one of those grounds, but not upon all of them, the objection is sustained.

By Mr. Butler:

Q. Now, Mr. Larabee, if inferior wheat—and I ask you to assume that the flour made from inferior wheat may be bleached by the Alsop process so as to simulate the appearance of flour made from a better wheat, the degree of simulation being such that the ordinary, unskilled purchaser, non-expert purchaser, cannot tell the difference—now, assuming those facts to be true—you are not responsible for whether they are true or not—but assuming them to be true, then, I ask you if that bleaching process is not used to conceal inferiority and to deceive.

Mr. Scarritt: We object to that, if Your Honor please, for the same reasons.

The Court: He may answer that. The substance of the question is whether it conceals inferiority. He may answer it.

Mr. Scarritt: That is for the jury to decide.

The Court: No, it is for the witness to say.

A. No, I do not think, Mr. Butler, you could conceal inferior flour by bleaching.

Mr. Butler: I move to strike that out as not responsive, because I asked him to assume that.

The Court: Yes, that is not an answer.

A. (Continuing) I will have to have the question read.

Q. Let me state it again, and perhaps I will make it a little clearer as I go along. Now, I am asking you a question as an expert. I am going to ask your opinion upon an assumed state of facts, which I ask you to assume—not whether they are true or not—we will leave that to the jury, but I will ask you to assume that to be true, that the bleaching and whitening of flour by the Alsop process make the darker colored flours from inferior wheats simulate the appearance of the lighter colored flours, from better wheats, and that the degree of simulation is such that the ordinary non-expert flour purchaser cannot detect the difference between them. Now, assuming those facts to be true, I ask you if the Alsop process has not thereby, as a practical matter, concealed inferiority and misled the purchaser.

Mr. Scarritt: We object to that, if Your Honor please, as incompetent, irrelevant and immaterial, and not stating in the hypothetical question the facts in the case, and as invading the province of the jury, and asking the witness to determine the very question and issue made under these pleadings, which the jury alone can decide.

The Court: Objection is overruled, and the witness may answer.

A. May I ask a question?

By Mr. Butler:

Q. Certainly. A. This simulation is in color only?

Q. In appearance? Simulation of appearance.

A. Well, the appearance of a flour might not be all in the flour.

Q. Well, that is the reason I said appearance. I wanted to be perfectly fair with you.

A. That is a hard question for me to answer, Mr. Butler, just to be honest with you.

Q. I intended that it should be, but I intended it should be so framed that it could not be answered but in just one way. Now, isn't it?

A. There are so many things that come in to qualify the appearance of the flour.

Q. I asked you to assume that.

Mr. Helm: Do you ask Mr. Butler that he assume the turkey wheat made the poor flour?

The Court: Now, gentlemen, let us get along.

Mr. Helm: The evidence is all to the contrary.

A. That is a hard question to answer, yes or no.

By the Court:

Q. Well, Mr. Witness, answer it yes or no, or that you don't know. A. Well, I don't know.

1808

Redirect Examination

By Mr. Elliott:

Q. Now, Mr. Larabee, I will ask you if, in your judgment, flour ground from new wheat is improved by bleaching.

Mr. Butler: I object to that as not redirect. I did not ask him whether any flour was improved by bleaching.

The Court: It is a new matter. If course, if you over-looked it, you may go into that.

Mr. Elliott: Well, it was really preliminary to another question.

The Court: Let us get on. You recall the witness, then.

Mr. Elliott: Yes.

The Court: All right.

By Mr. Elliott:

Q. Now, I will ask you if a flour ground from new wheat, is, in your judgment, improved by bleaching.

A. Yes, I think it is improved.

Q. Now, prior to the introduction of any bleaching process, I will ask you, what the practice of millers in respect of grinding new wheat, if any, as to obviating putting out this new flour, or flour from new wheat.

Mr. Butler: Now, that is clearly immaterial. Can it be, Your Honor, in a trial charging adulteration under these sections of the statute, that considerations of that kind shall weigh in the minds of the court and jury?

The Court: He may answer.

A. We usually carried over sufficient old wheat, to enable us to get into the new crop, when it was in a proper condition to grind.

By Mr. Scarritt:

Q. Storage, you mean? Warehouse? A. Yes.

The Court: And your answer is the bleaching saves this interest, and storage charges? I see.

1809 Mr. Helm: And gives satisfaction to the customers.

Mr. Butler: I move to strike out the statement of Mr. Helm "And gives satisfaction to the customers" as impertinent and irrelevant. Mere interruption. Every time I rise to examine a witness, he interrupts, and talks, and he has not done anything in this trial, since Krite left the stand, but interrupt, and I insist we must not be interrupted in that way.

The Court: That is Mr. Helm's statement, not the witness's. it saves interest charges, and storage charges.

By Mr. Elliott:

Q. I will ask you, before bleaching,—you answered Mr. Butler that it was your custom to put all of your flour out into the market as soon as possible,—if, at the time of the new wheat crop, you would have that old wheat to carry over, and mix with a new wheat, to obviate the difficulty of putting out new flour from new wheat, is that it? A. That is the idea.

Q. Now, Mr. Butler asked you to assume that a dark flour—I will not attempt to give the exact language, but I think this is the substance of it—to assume that a dark flour, from an inferior wheat, is bleached, and made to simulate the appearance of a lighter flour, from a superior [flour]. I will ask you if, as a matter of fact, a dark flour, from an inferior wheat, by bleaching, can be given or made to simulate the appearance of a lighter flour, from a superior wheat, unbleached.

Mr. Butler: That is objected to for this reason. It is clearly in the form of redirect examination. When they called Mr. Larabee to the stand, they did not ask him any such question.

The Court: My understanding is he is recalling the witness.

Mr. Butler: But, Your Honor, then I assumed the testimony of the other witnesses, on the other side of the case, and asked him to assume it as a fact and give us his opinion, and he said he could not answer, and that dropped it. Now, that certainly does not open the door for Mr. Elliott, on redirect examination, to traverse that assumption.

1810 The Court: No.

Mr. Butler: They elected not to ask Mr. Larabee that question, and I had a right to call for his opinion on the testimony of Mr. Edgecomb, and of Mr. Holderidge, and a score of other millers, but he could not answer it.

The Court: But, Mr. Butler, this witness is now being called for the first time, by reason of what Mr. Elliott impliedly said, it was an oversight.

Mr. Butler: But he based it on my cross-examination.

The Court: Well, let us go on. This is an original question.

Mr. Butler: Let it be framed as an original question.

Mr. Elliott: I will withdraw that question.

The Court: You would not have the right to frame an original question on his cross-examination.

By Mr. Elliott:

Q. I will ask you if in your judgment a dark flour, from inferior wheat, can be bleached, and made to simulate the appearance of a lighter flour, from a superior wheat.

A. No, I doubt that very much.

Recross Examination

By Mr. Butler:

Q. Is flour from the new wheat, from the harvest fields, darker than it will be from the same wheat, later on, in color?

A. I am not sure I can answer that. I would rather think it would be. That would be my impression.

Q. And you know it is inferior then, don't you?

A. No, I would not say it was inferior, but it needs perhaps a little age on the flour.

Q. In order to improve its inferiority?

A. I do not know as you could call it an inferiority, or not. It is the best you can get out of the wheat.

1811 Q. But, as compared with flour made from the same wheat, which has been conditioned, it is inferior?

A. Well, if you condition your flour, to the same length of time you do your wheat, it would probably be equal to it.

Q. Then, let me see if I understand you. You say, then, that the flour from the new wheat is not inferior?

A. Well, I say I would not want to say that it was inferior. It does not work as well. We admit that,—the millers admit that.

Q. Is it inferior in color, or quality.

A. Well, I don't know that I could call it any inferiority. It is not as ready to work. Now, we all have to admit that. If you call that an inferiority, why then, it would be.

Q. Doesn't bleaching make that simulate the appearance and characteristics of flour made from aged and conditioned wheat?

A. Well, it puts practically the same quality in it, I should say from the standpoint of a person working the flour; that it is a defect in the wheat; that it is defective at this time, in that it still lacks a little of the age.

Q. Doesn't it make it simulate the appearance and characteristics in every particular?

A. I think it would work a great deal like that, if not quite like it.

Q. So, then, the bleaching of the flour made from the new wheat, makes it simulate the characteristics and appearance of flour made from the same wheat that has been naturally conditioned?

A. Well, I think the flour would work a good deal the same, yes, sir.

Q. And appear a good deal the same?

A. Yes, appear a good deal the same.

Thereupon court stood adjourned to ten o'clock A. M. Friday, June 24, 1910.

1812 Pursuant to adjournment court met at 10 o'clock A. M. Friday, June 24th, 1910, and proceeded with the trial of said cause further as follows:

Addie Buck, called as a witness on behalf of the claimants, being first duly sworn, testified as follows:

Direct Examination

By Mr. Scarritt:

Q. Just state your full name to the court and jury, Mrs. Buck.

A. Addi Buck, or E. M. Buck, is my husband's name.

Q. Where do you reside?

A. One mile from Green Castle.

Q. A mile from Green Castle, in Missouri?

A. Yes, sir.

Q. You spoke of your husband. You have a family, have you? A. Yes, sir.

Q. You and your husband and how many children?

A. Two children.

Q. Do you know Mr. Terry, of Green Castle, the grocery-man?

A. Yes, sir. We do all our trading there.

Q. I will get you to state if you bought any flour from him along about the 7th, 8th or 9th of April, 1910?

A. My husband did.

Q. Did you use it? A. Yes, sir.

Q. What kind of flour was it?

A. It came from the Lexington Mills, Lexington, Nebraska, and was a Cream 5-X flour.

Q. Lexington Mill, Cream 5-X flour. A. Yes, sir.

Q. How much did you get at that time?

A. Well, my husband brought out at that time three sacks, two for my father, and one for ourselves.

Q. Brought out three sacks, one for yourselves—for your own family, and two for your father's family?

A. Yes, sir.

Q. Where did your father live, with reference to your residence? A. Just across the road.

Q. About a mile from Castle?

A. Yes, sir, just across the road

1813 Q. You live on a farm, do you? A. Yes, sir.

Q. And your father lives on another farm?

A. Yes, sir, just a small farm.

Q. Your father is a very old man, is he?

A. Yes, sir, a retired farmer.

Q. Did you use this sack of flour that you bought from Mr. Terry, that is, the Lexington Cream 5-X flour?

A. Yes, sir.

Q. How did you find it with reference to its baking qualities? A. I found it just fine.

Q. I will ask you if you do your own cooking?

A. Yes, sir, I do all my own cooking.

Q. How did you find this flour with reference to other flours that you had used theretofore?

A. I found it whiter.

Q. How, with reference to its baking qualities?

A. Well, it baked as nice as any flour I ever used.

Q. Was the quality of the bread made from this flour, such as to attract your attention, or was it just the ordinary?

A. No, sir, it was so much better, that my husband called the attention of the family to what fine bread it made, and after he had eaten some of it, he said what a fine taste it had.

Q. Not what your husband said.

Mr. Butler: I guess we will strike out what her husband said, as hearsay.

The Court: It may be stricken out.

A. And I said I had tasted it before.

Mr. Butler: Wait a minute. I guess we will move to strike out the conversations between you and Mr. Buck.

The Court: That may be stricken out.

By Mr. Scarritt:

Q. Now, you did state, and that is not stricken out, as I understand it, that your attention was called to the quality of the bread? A. Yes, my attention was called to it.

Q. Now, what was the quality of the bread made from this flour, from your own statement, and your own attention?

1814 A. It had a better taste to it than any flour that we had used for a long time.

Q. Did you try to get some more of it?

A. Yes, sir. We were intending to go back and get several sacks of it, the next time we went to town.

Q. What for? A. Well, it was so good.

Q. Now, these two sacks that were bought for your father. Were they delivered to your father? A. Yes, sir.

Q. And did he and his family use them?

A. Yes, sir, they used them.

Q. Now, have you made any bread out of that flour, and have you any bread here made out of that flour?

A. Yes, I have some (producing same).

Q. Is this bread that I hand you now, Mrs. Buck, the bread that was made out of the Lexington Cream 5-X Flour that you bought from Terry? A. Yes, sir.

Mr. Scarritt: I will have this marked as an exhibit.

Exhibit referred to was then marked by the reporter Claimants' Exhibit 250.

By Mr. Scarritt:

Q. Both of these loaves are made out of the same flour?

A. Yes, sir.

Q. At the same time? A. Yes, sir.

Q. How hastily did you make this bread?

A. I had to hurry the bread, and it isn't as good as I have been baking, because I had to make the train, and I had to hurry the bread.

Q. Now, just smell that bread.

(The witness does as requested.)

Q. Is there any sour smell there?

A. Nothing that I can see is wrong.

Q. No rancid smell there? A. Nothing that I can see.

Q. Any sour taste to this flour, when it was made up into bread? A. No, sir.

Q. Any rancid taste, or rancid smell?

A. Not that I could detect.

Q. I wish you would just cut off a couple of slices of that bread, and pass it to the jury.

(Witness does as requested.)

1815 Q. Would you mind having the jury taste this?

A. No, sir.

Q. Did you deliver any part of this flour to Mrs. Charles Kidwell, one of your neighbors, to be cooked? A. Yes, sir.

Cross-Examination

By Mr. Butler:

Q. Mrs. Buck, did you ever before have bleached flour that you know of?

A. Not that I know of. I don't know anything about it.

Q. And this flour tasted differently from other flour that you have had. A. Had a better taste to it.

Q. Yes, you think it has a better taste, but it is distinctly a different taste?

A. Well, it has a better taste. That is all I can tell you.

Q. And very much better, isn't it?

A. Yes, sir, it is better, considerably.

Q. So, therefore, it is very much different, isn't it?

A. Well, it has a good taste about it.

Q. The children are well, Mrs. Buck?

A. Yes, sir, and very hearty.

Mrs. Charles Kidwell, being called as a witness on behalf of the claimants, being first duly sworn, testified as follows:

Direct Examination

By Mr. Scarritt:

- Q. Your name is Mrs. Charles Kidwell? A. Yes, sir.
- Q. You live at Castle, Missouri? A. Yes, sir.
- Q. You have a family? A. One child.
- Q. And a husband? A. Yes, sir.
- Q. You have a husband? A. Yes, sir.
- 1816 Q. How long have you been living at Castle, Missouri?
A. Eight years.
- Q. Do you know how long Mrs. Buck has been living there?
A. No, sir, I do not.
- Q. Longer than you have, hasn't she? A. Yes, sir.
- Q. Did you buy any of this flour from Mr. Terry, that was
the Lexington Cream 5-X Flour? A. Yes, sir.
- Q. How much of it did you buy? A. One sack.
- Q. What did you do with that sack of flour?
A. I used it and made bread of it.
- Q. Do you do your own cooking? A. Yes, sir.
- Q. What kind of bread did it make? A. Good bread.
- Q. Did you use the whole sack up? A. Yes, sir.
- Q. Did you send for more, or want to send for more?
A. No, we did not.
- Q. Did you want more? A. Yes, sir.
- Q. But you found out it has been seized, and you could not
get any more? A. Yes, sir.
- Q. How was that flour, with reference to its bread baking
qualities, Mrs. Kidwell, what kind of bread did it make?
A. It made good bread.
- Q. Well, in comparison with other flours that you had used?
A. Well, the bread was whiter than other flours.
- Q. How was it with reference to its strength and quality?
A. It was good.
- Q. And taste?
A. Well, it was good—had a good taste.
- Q. Did it have any rancid taste or smell about it?
A. No, not that I know of.
- Q. Did it smell like rancid butter, or lard? A. No, sir.
- Q. Did it taste like it? A. No, sir.
- Q. Now, Mrs. Buck gave you some of this flour? You had
used up all of your sack, hadn't you, when we asked you to make
some bread out of that, you had used it all up? A. Yes, sir.
- Q. And Mrs. Buck gave you some, as she has testified. What
did you do with that? A. I made bread of it.
- 1817 Q. Have you got that bread here? A. Yes, sir.
- Q. Before producing that bread, I will ask you if this
flour that you bought and used gave satisfaction? A. Yes, sir.
- Q. I will get you to state if it gave you as good or greater
satisfaction than any flour you had ever used?

Mr. Butler: Objected to as calling for a conclusion. I have no objection to her telling whether it tasted differently, or not.

The Court: Objection sustained.

By Mr. Scarritt:

Q. You say it gave perfect satisfaction? A. Yes, sir.

Mr. Butler: I thought that was sustained.

The Court: I sustained it as to the comparison. That may stand.

By Mr. Scarritt:

Q. Now, you used it every day? A. Yes, sir.

Q. On your table? A. Yes, sir.

Q. (Handing the witness a loaf of bread) Now, is this the loaf that you made out of this flour? A. Yes, sir.

Q. That seems to be in kind of a twin loaf, too, isn't it? Will you break it open.

(Witness does as requested.)

Mr. Scarritt: We will mark these two loaves Exhibit 252.

Q. Will you cut that? (Witness does as requested.)

Q. Cut a slice of it, will you please, and hand it to the jury?

(Witness does as requested.)

Q. What kind of a stove did you cook this bread in?

A. I baked it on a wood stove.

Q. Just an ordinary wood stove? A. Yes, sir.

Q. Cooked it in the oven? A. Yes, sir.

Q. Just like a housewife ordinarily cooks it? A. Yes, sir.

Q. Is your family quite well, I will ask you? A. Yes, sir.

Cross-Examination

1818 By Mr. Butler:

Q. When was Judge Scarritt down to your place. He says he asked you to make this flour into bread. When did the Judge come down?

Mr. Scarritt: I said "we", Mr. Butler.

Mr. Butler: You did not mean Alsop, did you? You mean yourself among others, don't you?

Q. When was Judge Scarritt down there and asked you to make this bread? A. He never asked me.

Q. Have you any idea whom he did mean when he said "we"?

(No response.)

Mr. Butler: That will be all.

A Juror: Did you ever have any flour you could not make pretty good bread out of?

A. I am a pretty good bread baker.

The Juror: What is that?

A. I can bake pretty good, light bread. I have used flour I could not make very good bread out of.

By Mr. Scarritt:

Q. Now, that brings us back to the question of whether this means better bread,—whether you made better bread out of this flour, than you do others? A. It is whiter, I believe.

Q. The same quality and strength? A. Yes.

Recross Examination

By Mr. Butler:

Q. You said you did have some flour that would not make good bread?

A. I have used flour that did not make very good bread.

Q. Made pretty good, but not as good as some others.

A. Not as good as this.

Q. Do you know whether that flour that would not make good bread was adulterated by putting the white part of the corn in it? A. No, sir.

Q. Were you familiar with the fact that the mill did, 1819 sometimes take the hominy grits, to the extent of twenty to forty per cent, and put it in wheat flour, and make it like wheat, and sell it as wheat flour? A. No, sir.

Q. You do not know whether that is the kind you failed on, or not? A. No, sir.

Witness excused.

Mrs. L. P. Houston, called as a witness on behalf of the claimants, being first duly sworn, testified as follows:

Direct Examination.

By Mr. Scarritt:

Q. Your name is Mrs. L. P. Houston? A. Yes, sir.

Q. And you live near Castle, in the state of Missouri?

A. Mile and a half west of Castle.

Q. On a farm? A. Yes, sir.

Q. Have you a family?

A. Yes, sir, I have got four children and my husband and myself.

Q. Your husband and yourself and four children?

A. Yes, sir.

Q. How long have you lived in that neighborhood?

A. Well, we have lived there about five years, and then we moved away and came back, and have been living there two years now. Been there seven years altogether.

Q. How large a place is Castle?

A. Well, I don't know as I could tell you just exactly.

Q. A small place, isn't it?

A. Just a small place, yes, sir.

Q. Did your family use any of this Lexington Cream 5-X flour from Mr. Terry's store? A. Yes, sir, one sack.

Q. You obtained one sack? A. Yes, sir.

1820 Q. And did you use it up? A. Yes, sir.

Q. What kind of bread did it make?

A. Made good bread.

Q. Did you attempt to get some more? A. We did.

Q. When you found out what kind of bread it made?

A. Yes, sir.

Q. Why did you do that?

A. Because it was good, and we wanted more.

Mr. Butler: He object to that.

Mr. Scarritt: These are consumers.

The Court: Oh, the point to it all is, she was satisfied with the flour.

Mr. Scarritt: That is not the only point.

The Court: Well, go on. I do not see any other point to it.

By Mr. Scarritt:

Q. What was the nature and character of the bread made from that flour?

A. Well, it was whiter than what we had been using.

Q. How was it as to taste?

A. It was all right. It was good.

Q. Flavor? A. All right.

Q. And smell? A. All right.

Q. And I will get you to state whether or not it gave entire satisfaction or not? A. It did.

Q. I will get you to state what its qualities were as to cooking, baking up and cooking in the oven?

A. Well, it was good.

Q. What kind of oven do you use? A. I had a range.

Q. How? A. I have a range.

The Court: Cook stove?

A. Wood or coal, either.

The Court: Wood or soft coal?

A. Yes, sir, soft coal.

By Mr. Scarritt:

Q. What do you use?

A. Use wood, mostly. I did when I was baking that.

Q. In baking this? A. Yes.

1821 Q. Did you get any of this "Purity" flour from Mr. Terry, after the other was seized? A. Yes, sir.

Q. How did it compare, in baking qualities, with the bleached flour? A. Was not as good.

Q. Baked and doughed in the same way, and in the same oven and everything alike? A. Yes, sir.

Cross-Examination

By Mr. Butler:

Q. When did you get the "Purity"?

A. I think it was the 8th of April. I am sure it was.

Q. I meant the last sack of "Purity".

Mr. Scarritt: He meant the "Purity". Not the Lexington.

A. Oh, the "Purity". We have used two or three sacks of that. I don't know just exactly when we got the first sack. It was just after we got through using the Cream. Quite a number of us, and it don't take long to use a sack of flour.

Q. Are you using the "Purity" yet?

A. Yes sir, and we have been using it since we could not get the "Cream."

Witness excused.

Orlando M. Friend, called as a witness on behalf of the claimants, being first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Elliott:

Q. Where do you reside, Mr. Friend?

A. Hannibal, Missouri.

Q. What is your business?

A. In the milling business.

1822 Q. What is the name of your mill?

A. Hannibal Milling Company.

Q. What is the capacity, in barrels, of that mill?

A. Make between seven and eight hundred barrels a day.

Q. Between seven and eight hundred barrels a day?

A. Yes, sir.

Q. Are you a practical miller? A. Yes, sir.

Q. How long have you been a practical miller, or engaged in milling?

A. I should say in the neighborhood of thirty-five years.

Q. Do you use an Alsop bleacher? A. I did.

Q. How long have you had that machine in your mill?

A. In the neighborhood of six years, I guess. We were among the first to put it in.

Q. You have made flour in your mill, bleached by this Alsop process? A. Yes, sir.

Q. I will ask you, Mr. Friend, what effect have you observed if any, that bleaching has on flour? What effect or effects?

A. It ages the flour. It aerates it, makes it whiter, dries it out some, increases the absorption qualities of it, I should say.

Q. Have you noticed any difference in the dough made from bleached flour, as compared with the same flour unbleached?

A. I would say the dough was more elastic, has more toughness in it, from the fact it is dried out more, by aeration.

Q. We have some testimony here relative to aging the flour by storing it. I want to ask you what happens to flour when aged by storing it? Now, understand I do not mean bleached. I mean flour as it is ground, and aged by storing it. What would you say happens to that flour?

A. It whitens, and loses some of its moisture, I should say, dries out some.

Q. Now, does aging flour by storage always improve it?

A. Well, in some cases I would say yes, and others I would say it did not.

Q. Now, tell us which case you say won't and which the other?

A. I would say that higher grades of flour, stored and subjected to atmospheric conditions, or in the atmosphere, would grow better, would grow whiter. I would say flour milled from unsound wheats, more diseased wheats, more low grade wheats, would not become better. I should say they would deteriorate, rather than grow better.

1823 Q. Now, what about this process. Does that improve all flours—all kinds of flours?

The Court: The Alsop process?

By Mr. Elliott:

Q. Yes, sir, the Alsop process, I mean.

A. I should say it did not.

Q. Tell us, as you have done in the other case, what distinctions do you make if any?

A. Just as I stated a moment ago, I should say that high grade flours, more flours milled from good wheat, were improved by the process. Flours that were milled from unsound wheat would not be improved by it, from the fact that unsound or diseased wheats are inclined to make a blue, soft, undesirable

color, and the process would improve that—the objectionable color, I should say.

Q. And that, as I understand it would be the same as if it was aged naturally? A. Yes, sir.

Mr. Butler: I move to strike that out, as offensively leading.

The Court: That last part is very leading,

By Mr. Elliott:

Q. Would that same result follow, if you had let that unsound flour age naturally?

A. I would say that it would. I would say that it would still be an objectionable color.

Q. From the fact that unsound or diseased wheats are inclined to make a blue, soft, undesirable color, and the process would make that the objectionable color, more apparent, I should say.

[Q And as I understand it, that would be the same as if it was aged naturally? A. Yes, sir.

Mr. Butler: I move to strike that out as offensively leading.

The Court: That last part is very leading.

By Mr. Elliott:

Q. Would that same result follow, if you had let that 1824 unsound flour age naturally?

A. I would say that it would. I would say that it would still be an objectionable color.]

Q. Now, how do atmospheric conditions, and manner of package of flour affect its improvement, by storage?

A. Well, I would say that you could take flour, and put it in small quantities, subject it to the air, and it would bleach out readily. If it packed in loose packages, why, it probably would not show so much aging, and, if it was packed in a parcel, where it was almost excluded from the air, it would still take a greater length of time. If it was bottled up, I do not know whether it would bleach or not. That is questionable.

Q. What do you mean by "bottled up"?

A. Well, I mean excluding it from the atmospheric conditions.

Q. Now, aside from these improvements you have referred to—that is, aside from improving the flour in color, and aging it, by this Alsop process—what other advantages, if any, have you noted in the use of this Alsop process?

A. I would say there were other advantages. Without the use of the process, to make flour white, you would have to grind it very fine, and it would make it soft, of a soapy nature, and would impair the quality somewhat, and, by the use of the

process, you can grind more granular and make a livelier, more free, and suitable flour, and would make it more acceptable, I would think.

Q. Now, as compared with the finely ground flour is a granular flour preferred by the miller? A. I think so.

Q. Now, suppose you take a flour that is more or less granular, and assume that it has a certain degree of yellow color in it, and suppose that flour be ground down to a more powdery form—finer—I will ask you what change, if any, does that make in the color of that flour?

A. Well, it would whiten it.

Q. Whiten, or lighten the flour?

A. Lighten the color, yes.

Q. Now, what effect does that fine grinding have on the quality of the flour?

A. We think it impairs the qualities of it. As millers we always try to keep a free, loose, lively flour, to retain all the strength that there is in the grain in the flour—a granular, free flour is more acceptable flour than one that is very soft, because, if it is soft, it becomes what you might term heavy flour. It hasn't got the life in it.

Q. Is the granular flour lighter, or darker in color, than the more finely ground flour?

A. It is not so light in color. The color comes from the breaking down of the granules, when using greater pressure on your rolls, setting them closer together.

Q. Now, assuming that a miller wants to make his flour white by grinding it fine, I will ask you if that involves any more expenditure and horse power, than where he grinds a more granular flour?

Mr. Butler: I think we will object to that. I do not think of the situation have anything to do with that.

Mr. Elliott: I think it has.

The Court: I will allow them to put this evidence in, but the question, in my judgment, is not as to what is to the advantage of the miller.

A. It requires a greater amount of horse power, to grind flour fine, than it does to grind it more granular, because you open up your rolls, by pulling them back—letting them back, relieving the pressure, and thereby relieving the frictional load, and a frictional load, of course, means horse power, and horse power costs money to make. You have to buy coal to generate the steam and make horse power, and there is a degree of economy along that line, I would say.

Mr. Butler: I think I will move to strike this all out.

The Court: It may stand, subject to what I will charge the jury in reference to this.

By Mr. Elliott:

Q. To what class of people do you sell your flour?

A. Well, I should say it was quite a variety. We sell in the local trade around home, and out through the state of Missouri. We go in the southeastern territory. We go into the southwestern territory, and we go abroad with some 1826 of it.

Q. Now, I meant more in this sense,—as between what you might term a family trade, or some other class of trade. Which do you have largely?

A. I should judge ours was more for the family trade.

Q. Now, I will ask you, does your trade express a preference for any particular character of flour, and if so what kind?

Mr. Butler: Objected to as hearsay, irrelevant and immaterial, and calling for a conclusion.

The Court: Well, I will hear what he has to say.

By Mr. Elliott:

Q. Does your trade express a preference for any particular character of flour, and if so what kind?

A. Our trade has been for bleached flour very largely.

By the Court:

Q. Do you advertise bleached flour?

A. We notify every customer—

Q. (interrupting) I ask you if you advertise bleached flour?

A. We don't advertise it, but we notify everyone of our bleaching, when we bleach, and when we don't.

By Mr. Butler:

Q. By a sign on your sack? A. No, sir.

By Mr. Elliott:

Q. I will ask you, Mr. Friend, if you have ever noticed any foreign odor in flour that has been bleached, as a result of the bleaching? A. I have not.

Q. I will ask you if you have ever compared bread made from bleached and unbleached flours, and if so, if you have ever noticed any difference in the smell, or in the taste [or] such bread?

A. I have made numerous comparisons.

Q. With what result?

A. I have never been able to detect any odor on that bread, whatever, from the use of the gas.

Q. And, about the taste?

A. Or taste, either.

1827 Q. Do you use bleached flour in your own family?

A. I certainly do.

Q. Suppose you take several grades of flour, as you might have them in your mill, and bleach all of them. I will ask you what result follows, as to the relative color of those various grades?

A. I should say that they retain their relative difference, unless it might be on some of the lower grades, or that which had more fibrous matter in it, it would not show so much difference. If it had less, it would show more. Fibrous matter is not so susceptible to the bleach as pure flour—the purer the flour, the more susceptible to the bleach.

Q. Now, I will state to you that there has been some testimony here about bleaching flour a little, making it a little whiter, and bleaching it some more and making it a little more whiter, and bleaching it still more, and making it still more whiter, and so on. I want to ask you do I understand bleaching the flour by this Alsop process changes the color of the flour?

A. Well, it makes it lighter in color, but I suppose if you would compare it with something white, it would still be of a yellow color still. It would still have the golden color to it.

Q. Have you recently visited the Rex Mills?

A. Yes, sir.

Q. I will ask you if you looked at the gas, or the gaseous medium coming from that mill, to ascertain if you could see any color in it, and if so, state with what result?

A. I visited there, the afternoon, and spent the larger part of the afternoon there, and the gas was exposed, and as far as I could discern, it was transparent. I could not see anything—anything at all. When we first opened up the pipe, I should say some dust fell out of it,—some powder, when we first took out the plug, but, after the plug was removed, and the flour dust blown away, the gas was transparent—just like the air.

Q. Have you brought into court some of your bread?

A. I have some present, yes, sir.

Q. Will you please produce it?

1828 (Witness produces exhibits, which are marked by the reporter Claimants' Exhibits 254 and 255.)

Q. Now, I hand you two loaves of bread, marked Exhibit 254 and 255, and ask you to state what they are.

A. They are what we call our "Housekeeper's Delight" brand of flour. One is the bleached and the other is not.

Q. Now, state which is made from the bleached, and which the unbleached.

A. Exhibit 255 is the bleached, and 254 is the unbleached.

Q. 254 is the unbleached, and 255 is the bleached. Now, who baked this bread?

A. It was baked by the laboratories in this city, and A. W. Esterbrooks, is it?

Mr. Scarritt: Yes, that is right.

By Mr. Elliott:

Q. Did you bring that flour here, and give it to Mr. Esterbrooks? A. I did, in person.

Q. Now, did these cut loaves correspond with the other two loaves? A. Identically the same.

Mr. Elliott: I introduce these in evidence. I will show the cut loaves if there is no objection. (Does so)

Mr. Elliott: I will state, if your Honor please, that we will produce Mr. Esterbrooks, and he will tell how he made them.

The Court: Very well.

Cross-Examination

By Mr. Butler:

Q. Do you grind the soft winter wheat? A. Yes, sir.

Q. Producing the whitest flour in the world, doesn't it?

A. Well, I guess it makes pretty white flour.

Q. Well, I stated it right, didn't I?

A. I don't know of anything that makes any better flour—any whiter flour, no, sir.

Q. Are you familiar with bleaching wheat by sulphur fumes? A. I am not.

1829 Q. Have you ever heard of putting products of corn in flour? A. I have.

Q. The hominy grits, or corn grits,—the white portion of the corn?

A. I don't know that I ever heard of putting any corn grits, or hominy, but I have put—heard of putting in corn flour. I suppose it was made from corn grits.

Q. Have you done it? A. No, sir.

Q. The reason I asked you that, was the form your last phrase took, at first. That made the wheat flour better, I suppose? A. I hardly think so.

Q. Don't you suppose you could get the millers who did that to come into court with loaves of bread, and the women who had it, to say it gave satisfaction?

Mr. Elliott: I object to that question, if your Honor please.

The Court: He may answer it.

A. Just state the question, please.

Last question read by the reporter.

Mr. Scarritt: Objected to, as calling for what other witnesses might do or say.

Mr. Butler: Well, let it go.

Q. What percentage were they accustomed to put in?

A. I never attacked that proposition.

Q. I know you did not.

A. But I guess some of it was pretty badly plugged. I have understood so, although I never was guilty of adulteration.

Q. Forty per cent?

A. I should not say as to the per cent. I have understood some of it was so badly plugged up with corn flour that it would scarcely make a dough.

Q. Would not rise very boldly?

A. No, sir, I would not think so. But that has been years ago.

Q. Made it white, didn't it?

A. I guess it did. I never had anything to do with a mixture of corn flour and wheat flour. I suffered, I guess, financially, by not doing it. I guess we would have been better off, if we had done it.

1830 Q. You know, don't you, that that is a good way to make white flour, and you know that whiteness is a great thing to sell flour on, don't you?

A. Yes, sir. It has been a great aim of the miller, so long as I can have any recollection, to make a white product.

Q. And that was the reason they put in the corn, wasn't it? A. No, not particularly so.

Q. What was it—to save money?

A. Corn, at that time, I think, was worth about twenty-five or thirty cents a bushel, and wheat was worth about ninety, and the incentive was very great to put in the corn.

Q. Do you think you could save as much money, by putting in corn, as you can by bleaching? You told us you could save a great deal of money by not having so much milling to do, if you bleach it?

A. I should say the profit was very much greater, putting in the corn flour, than the bleaching.

Q. You think it is better to make flour white by nitric acid, than it is by corn?

Mr. Scarritt: We object to that because there is no testimony to support it.

The Court: He may answer.

A. Just repeat the question.

Last question read by the reporter.

A. I would say yes, sir.

Witness Excused.

Justin R. Soden, called as a witness on behalf of claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

1831 By Mr. Elliott:

Q. Give us your name. A. Justin R. Soden.

By the Court:

Q. Where do you live? A. Emporia, Kansas.

By Mr. Elliott:

Q. What is your business? A. Merchant miller.

Q. How long have you been engaged in that business?

[—]. Ever since I was old enough to get into a mill.

Q. How long ago has that been?

A. About twenty-four years.

Q. What is the capacity of your mill?

A. We grind from one hundred and fifty-five to two hundred and twenty-five barrels.

Q. Per day? A. Per day. Twenty-four hours.

Q. Do you use the Alsop bleacher? A. Yes, sir.

Q. How long have you been using it?

A. Ever since the fall of 1905.

Q. Have you observed flour that has been bleached by the Alsop process? A. Yes, sir.

Q. Familiar with it? A. Yes, sir.

Q. I will ask you what changes, if any, you have noted, as being produced in flour that has been treated by this Alsop process?

A. I have never detected any particular change in quality, any further than color.

Q. Now, then, I will ask you to compare flour that has been stored or aged naturally, with flour that has been treated by this process. Now, I will ask you to tell us how, in your judgment, the effects produced in the flour by those two different ways of treating it, compare?

A. Well, if a person should attempt to mill, and age his flour, to a point that they like to have it, it would take a good deal of capital, and a good deal of storage room.

Mr. Butler: I move to strike out the "capital" part of it.

Mr. Elliott: Strike it all out.

The Court: Very well. Stricken out.

By Mr. Elliott:

Q. I am asking you to compare the effects on flour, of natural aging it, and the effect of flour by treating it by this process, and to state how those flours compare with one 1881 another?

A. With an Alsop process you can bleach your flour to have a similar age to most any age, you may age your flour too.

Q. Now, as to the quality and strength of flour bleached according to this Alsop process, how will it compare with flours that are naturally aged?

A. I have never detected that bleaching the flour has any effect, whatever, on the quality, outside of the color.

Q. I understand that, but I mean, when you go to make that into bread, and so forth, how will the baking qualities, and so forth, and the elasticity, or these other things that you refer to in bread,— how will they compare from a bleached flour, as compared with a flour that has been naturally aged?

A. There should be no difference.

Q. I will ask you, in your judgment, is there any difference?

A. No.

Q. Have you ever noticed any odor—that is, any foreign odor, or unpleasant odor from the flour that has been bleached by this Alsop process? A. No, sir.

Q. Have you compared bread made from bleached and unbleached flours? A. Only in the high patents.

Q. But, bleached and unbleached?

A. Bleached and unbleached.

Q. Have you noticed any difference in the taste, and smell of bread made from bleached and unbleached flours, respectively? A. No, sir.

Mr. Elliott: That is all.

Mr. Butler: No questions.

Witness excused.

Gerald Billings, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

1833

Direct Examination

By Mr. Elliott:

Q. What is your name? A. Gerald Billings.

Q. Where do you reside? A. Chesterton, Indiana?

Q. What is your business?

A. I am in the bakery business.

The Court: Where is Chesterton, Indiana?

A. It is about forty miles from Chicago, on the Lake Shore.

By Mr. Elliott:

Q. I will ask you if you have had any training as an expert baker, and if so, state what.

A. I have. I attended the Chidlow Institute in Chicago.

Q. How long? A. In 1902, about nine months.

Q. And you took lessons there, in baking?

A. In baking, yes, sir.

Q. Now, I will ask you if you have made a loaf of bread from this flour in Exhibit 249? A. I have.

Mr. Butler: That is the Wells-Abbott-Neeman flour that the gentleman from Iowa brought?

Mr. Elliott: Mr. Shoecraft.

The Court: From Clinton, Iowa?

Mr. Elliott: Yes, the flour that was over a year old.

Q. I will hand you a loaf of bread, and ask you if that is the loaf of bread made from such flour? A. Yes, sir.

Exhibit referred to was then marked by the reporter as Claimants' Exhibit 256.

Q. Do you identify this, as Exhibit 256, Claimants' Exhibit? A. Yes, sir.

Q. You might tell us how you made this loaf?

A. I used 350 grams of flour, 210 c.c. of water, 10 grams of sugar, 3 grams of yeast, 5 grams of salt, fermented the dough for three hours, giving it equal 50 per cent cuts, cutting it over four times.

Q. Just what do you mean by that?

A. 50 per cent of the total time. I allowed it to raise for 90 minutes, and I knocked the gas out of that—cut it over, we call it.

1834 Q. How do you do that?

A. By taking it out of the pan, or the jar, that is is raising in, and putting it on a breadboard, and knocking the gas out of it.

Q. And working it, or kneading it?

A. Working it, kneading it. Then, I allowed it to raise for 45 minutes longer, which is 50 per cent of the total remaining time, and then 22 minutes, and then 12 minutes, and then, in ten minutes, I panned the loaf, and left it to raise in the pan for one hour, put it in the oven, and baked it 30 minutes,—in and electrical oven.

Q. Will you cut that open? A. Yes, sir. (does so.)

Mr. Elliott: I offer this in evidence.

Cross-Examination

By Mr. Butler:

Q. What makes the loaf of bread which you made so yellow, compared with the loaf of bread that the lady from Castle made out of the seasoned flour, for Judge Scarritt?

A. Evidently the process used in baking the bread. The process is a very short process.

Q. The process of making the bread? A. Yes.

Q. Yours is the yellow process?

A. My process is a short dough process, which does not give as light a bread as the long dough process.

Q. I was inattentive, when you were first called, and did not get your employment. What is your business?

A. I am a baker.

Q. By whom employed?

A. I am associated with S. C. Billings.

Q. Where?

A. Valpraiso, Indiana. I live at Hesterton, Indiana.

Q. And you came all the way from Valpraiso, Indiana, to make this loaf of bread?

A. No, sir; I came from Hesterton. I made this loaf, yes.

Witness excused.

1835 F. S. Larabee, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination.

By Mr. Elliott:

Q. What is your name? A. F. S. Larabee.

Q. What is your first name? A. Frank.

Q. Frank S. Larabee? Are you a brother of Mr. Fred Larabee, who testified previously? A. I am.

Q. And are you associated with him in business at Hutchinson? A. I am, yes, sir, in the milling business.

Q. The same mills that he has testified to?

A. Same mills exactly, yes, sir.

Q. I will ask you, Mr. Larabee, what kind of wheat do you grind?

Mr. Butler: In order to save time, we do not expect to contradict the testimony of Mr. Fred B. Larabee, as to the kind of wheat ground in the Larabee mills.

By Mr. Elliott:

Q. Now, what kind of wheat, I will ask you, is found in the markets of Kansas, for grinding, by the millers?

A. The best wheat we can obtain is No. 2 hard Kansas wheat.

Q. What is the weight of that, per bushel?

A. 59 pounds per bushel.

Q. I will ask you if you are familiar with the milling of flour, as well as with the manufacture of flour?

A. I have attempted to make myself familiar with it. I have made several trade trips for our concern into the flour markets of the United States, and among the smaller trade.

Q. Now, in buying or selling flour—particularly, I presume, buying it—I will ask you to what is color a test, or is color relied on as a test of the character of the flour?

1836 A. Color is not regarded by the buyer as the test of the quality of the flour.

Mr. Butler: I move to strike that out.

The Court: It may stand.

A. May I answer that?

By Mr. Elliott:

Q. Yes.

A. I have never seen, in my experience in selling flour—I have never seen a buyer who has been deceived by the—

Mr. Butler: I move to strike out the volunteer statement of the witness as not responsive, irrelevant and immaterial.

The Court: It is not for him to say who has been deceived and who has not.

By Mr. Elliott:

Q. Now, you must testify just from your own experience. Do not tell us anything about what anybody else has said. In your experience, have you ever known flour to be bought solely on its color? A. No, sir, I have not.

Q. Now, take a flour of any given color, and assuming the color to be satisfactory, I will ask you in commercial life what is the usual custom of dealing with that flour, to ascertain if it is satisfactory or not?

A. Well, it depends, Mr. Elliott, upon whether the buyer is a skilled buyer, or an unskilled buyer.

Q. Treat both.

A. The skilled buyer will put the flour to other tests. Take the baker, who is presumed to be—who is a skilled buyer, will test for the strength of the gluten, moisture absorption, loaf volume, and the unskilled buyer, such as the country merchant, would buy flour only upon the guarantee of the mill.

Mr. Butler: I move to strike out the last statement, as being a conclusion of the witness, and as absurd.

The Court: It may be stricken out.

Mr. Scarritt: I ask that the remark of the gentleman, as to its being absurd, be stricken out.

Mr. Butler: All right, let the "absurd" go out.

1837 By Mr. Elliott:

Q. Now, dealing again with your own experience, what is the custom of these unskilled buyers, as you say, in buying flour; what is the custom that obtains in the trade?

A. That is the custom, Mr. Elliott, as I expressed it.

Mr. Butler: I move to strike that out.

The Court: It is stricken out.

Mr. Elliott: We except.

Q. Mr. Larabee, I will ask you, if a certain flour was presented to you and you had no flour to compare it with, you just had the one flour,—could you tell whether it was a straight flour or a patent flour?

A. Not from its appearance.

Q. I will ask you if, in your dealings with the milling of flour, and the bleaching of it, what effect bleaching has as to the relative flour of different grades of flour, as before bleaching and after bleaching.

A. Mr. Elliott, that would depend. If it is upon the flours milled in the same mill?

Q. Yes, sir.

A. The bleaching does not bring the lower grades to the same appearance as the higher grades, and, if both are bleached with the same amount of bleaching, they have the same relative difference after, as before.

Q. In your judgment, could you bleach a straight grade of flour, and make it resemble, or give it the color of a patent grade of flour, unbleached?

A. Not with Kansas wheats. Kansas milling, it cannot be done.

Q. That is, with what you have knowledge of?

A. Yes, sir.

Q. Could you, in your judgment, bleach a clear flour, and give it the color of a patent grade of flour—high grade of flour? A. I believe that is impossible.

Q. Just let us assume, Mr. Larabee, that a miller, bleaching a clear—that it was possible for a miller to bleach a clear flour and give it the same color, or a whiter color, than
1838 his patent flour, and should mix that clear flour with his patent flour, what effect would that have upon the grade of the patent flour?

A. It would deteriorate it.

Q. Now, respective of bleaching, and before bleaching, I will ask you if it is within your knowledge that any millers are accustomed to establish certain grades of flour, and sell them under certain brand, and to maintain the grades of such flours?

A. You mean by common consent among the millers?

Q. No. I say, is that the custom among millers? Take your own mill. Is it your custom to prepare a certain grade of flour, and sell it under certain brand, and maintain the grade of that flour sold under that brand? A. Yes, sir.

Q. And I say, within your knowledge, is that the custom that obtains amongst millers, do you know? A. Yes, sir.

Q. Have you ever noticed any foreign or unpleasant odor in flour that has been bleached by the Alsop process?

A. No, sir.

Q. Have you examined breads made from the same flour, bleached and unbleached? A. A great many times, yes, sir.

Q. Have you ever noticed any difference in the taste, or the smell of such loaves of bread? A. None whatever.

Q. Now, I want to ask you as to the effects which, in your judgment, are produced on flour, as a result of bleaching it by this Alsop process. Tell me your opinion in that regard.

A. It improves it—gives it a whiter color—removes the yellow stain, which is naturally in our flour, and ages it, after the manner of the natural aging.

Q. Are you a married man? A. I am, yes, sir.

Q. Do you use bleached flour in your own family?

A. I do.

Q. I will ask you, Mr. Larabee, if flour from new wheat is a good flour for baking purposes, irrespective of bleaching?

A. My understanding is a flour made from new wheat in baking will run in the dough, and it is not acceptable to the baker.

1839 Mr. Butler: I move to strike that out.

The Court: I did not hear that answer.

A. My understanding is that flour made from new wheat will run in the dough.

Mr. Butler: That is not all you said.

A. And is not acceptable to the baker.

The Court: The last part of it is stricken out.

By Mr. Elliott:

Q. Would, in your judgment, such flour be good for baking?

A. Oh, yes, it would be good for baking.

Q. I am afraid you do not understand my question.

Mr. Butler: Well, I am afraid he did, Mr. Elliott.

By Mr. Elliott:

Q. Well, is flour, if it runs in the dough, a good flour for baking? A. Yes, sir.

Mr. Butler: He says it is, and you cannot change that.

Mr. Elliott: No, I do not want to change it.

Q. What difference does bleaching flour from new wheat make on that? A. Seasons it; ages it.

Q. I mean, what effect does bleaching flour from new wheat have on it, as compared with a flour made from new wheat, unbleached; how will they compare, in bread making qualities?

A. It improves. The bleaching improves the flour made from—well, it does not increase the loaf volume, or the gluten, or anything of that kind.

Q. But its baking qualities, I meant.

A. Yes, it bakes better.

Q. Will a flour made from a new wheat, that has been bleached by this Alsop process, in your judgment make a better loaf of bread than the same new flour unbleached?

A. No, sir, except the color.

1840 Q. Except in color? A. Yes, sir.

Q. Now, do you regard color as a defect in flour?

A. Yes, color is—bad color is a defect in flour.

Q. I did not make my question clear. Do you regard yellow color I should have said, or a dark yellow color, as a defect in flour? A. I do, certainly do.

Q. Now, then, take a flour having a dark yellow color, and assuming that that color is removed by bleaching, I will ask you, in your judgment, if that would be removing an inferiority in the flour?

A. Yes, sir, it would be removing a defect.

Q. What per cent of Turkey red wheat would you say is obtainable in the markets of your state, or district, or wherever you buy it?

Mr. Butler: I object to that as immaterial.

The Court: He may answer it.

A. Not exceeding one per cent.

Mr. Scarritt: You mean the whole state of Kansas?

A. The whole state of Kansas.

Cross-Examination

By Mr. Butler:

Q. You are not actively engaged in the milling business?

A. Pretty actively.

Q. Your time is principally spent in the banking business?

A. Partially.

Q. Principally?

A. Principally; the majority of it, yes, sir.

Q. That is the way I understood you. A. Yes, sir.

Q. Is sulphur used to bleach wheat?

A. Let me understand it?

Q. Is sulphur, or the fumes of sulphur, used to bleach wheat? A. Not to my knowledge. No, I never heard of it.

Q. Is lime used to bleach wheat? A. No, sir.

Q. Any of the products or compounds of lime used to clean or treat or bleach wheat?

A. If you will modify that question, I think that lime is used sometimes to remove smoot from wheat, but not to bleach it.

1841 Q. What effect have the fumes of lime upon wheat?

A. I could not tell you. We never used it in our mill.

Q. Never used lime in your mill? A. No, sir.

Q. To remove smoot?

A. No, sir; we do not buy smooty wheat, to start with.

Q. Any smooty wheat in Kansas A. Not in our section.

Q. Is it not within your knowledge that certain grainmen, especially in the districts east of you, use sulphur fumes to bleach wheat? A. No, sir. I never heard of that before.

Q. Never heard of that? A. No, sir.

Q. Did it ever come to your knowledge that they put corn in, or the products of corn?

A. Only by hearsay.

Q. Yes. You never did it?

A. No. Well, I have heard that people did that, but we never did it.

Q. Well, it is a matter of great notoriety, in certain districts of this country, isn't it, with everybody in the flour and milling business, that it is used to deceive the consumers?

A. I could not tell you.

Q. Don't you know that, before the Alsop process—

A. (Interrupting) Well, Mr. Butler, you asked me as a matter of great notoriety. I could not tell you—

Q. It is a matter of common knowledge in the trade, isn't it? A. Yes.

Q. In the flour trade?

A. Yes. I have known of such things being done.

Q. Where your wheat flour had to go to find a market, it met wheat flour with the products of corn there, and had to compete with it, didn't it, just as Friend did, who was on the stand?

A. If we have suffered from such competition, I never knew it.

Q. Well, you are in the banking business, principally?

A. Yes; understand, I am in the milling business. I try to understand that.

1842 Q. Now, I want you to say whether or not the matter of putting corn in, and concealing the fact that corn is in the flour, is known to you, by general repute?

A. Yes, sir.

Q. To have been practiced extensively before the Alsop bleaching commenced?

A. I would not say extensively; I know it has been practiced.

Q. Now, that makes a fine flour, doesn't it? Doesn't corn added to wheat flour, really improve it, if it is in the right proportions?

Mr. Scarritt: I object to that, your Honor.

The Court: He may answer.

A. I would not say it would make fine flour.

Q. Well, it would not hurt it any? It would not injure or help it, either? A. I do not know; I suppose not.

Q. Now, if a little corn in the wheat flour whitened it, and got rid of this yellow color—just assume that to be the truth, now,—would you think that would be better than nitric acid?

Mr. Scarritt: A little corn juice might not hurt it?

A. Well, basing it upon the assumption, I presume yes.

By Mr. Butler:

Q. You would rather have you flour whitened by the honest products of corn, than by nitric acid, wouldn't you?

A. But, Mr. Butler, I don't like to have the inference drawn that I agree with you that that will remove the yellow tint from flour.

Q. No; you think nitric acid would remove it quicker, don't you?

A. Yes. I think that the bleaching process we use would remove it quicker.

Q. And you are not ready to say whether that is nitric acid or not? A. No, sir; I am not a chemist.

Q. Now, Mr. Elliott asked you a question, and the effect of that question, and your answer, was this, that millers establish—each mill, we will say, establishes a grade, and maintains it?

1843 A. Of its own. A grade of its own?

Q. Yes. Is that right?

A. I so understand it, yes, sir.

Q. Do you know where Wellington, Kansas, is?

A. Yes, sir.

Q. Do you know the Aetna Mill & Elevator Company, there? Cramer used to run it, and sold it.

A. I have never been in Wellington, Mr. Butler.

Q. Did you know the patent flour that that mill put out—"Aetna Silk, High Patent"?

A. I probably have examined it, sometime, as I do numerous—what our competitors are doing, but I do not have recollection of it now.

Q. Were you aware that that was a "Stuffed straight".

A. No.

Q. You know [that] I mean by a stuffed straight?

A. I think I do, yes, sir.

Q. That is, you take a straight flour, and then buy the low grades from some other mill, and put it in?

A. Yes, sir.

Q. Now, do you think that the stuffing of a straight with low grades, and the bleaching of it by the Alsop process, and labeling of it "a high patent", is a maintenance of a mill's grade?

Mr. Scarritt: We object to that, if your Honor please, as incompetent, irrelevant and immaterial, has nothing to do with the issues in this case, not based on any evidence showing that this flour in question was of that kind of a grade?

The Court: He may answer.

A. Mr. Butler, you put so many things in one question.

By Mr. Butler:

Q. Well, I will have the reporter read it.

A. No, I don't mind about that, but you were speaking of labeling it a patent. Now, I would not like to testify as to that, because most all grades of flour have been labeled "patent".

Q. Well, now, to cross-examine you, you said your mill maintained its own grade. Now, then, I ask you to assume that the "Aetna Silk High Patent" made by the Aetna Mill & Elevator Company in your state, was, in fact, a flour made from a mixture of new wheat, and old wheat, to which was added 15 or 20 per cent clear, bought from Hunter's 1844 Mill—the mill where the witness Barnard worked—and when they were made that way, they were bleached by the Alsop process, and labeled, "Aetna Silk, High Patent". I ask you whether or not you think that that is the maintenance of a grade.

Mr. Scarritt: We object to that.

The Court: I overrule the objection.

Mr. Scarritt: Let me state the reasons.

The Court: Judge, you have just gone over them, but you may repeat them if you want to.

Mr. Scarritt: Well, I object to that as irrelevant, incompetent and immaterial, and because counsel, in his question is attempting to testify to what other witnesses in the case have testified, and testifying wrongly.

The Court: Objection overruled.

Mr. Scarritt: We save an exception.

A. With this modification, Mr. Butler, that, if they had always put that grade of flour in that brand, I should say they were maintaining the brand—their grade.

By Mr. Butler:

Q. Now, as an expert miller, is a straight flour, to which has been added a 15 per cent clear, a patent flour?

A. Well, Mr. Butler—

Q. (Interrupting) Wait a moment, now. If 15 per cent clear flour bought from another mill, the remnant of the flour content of the wheat, used in the other mill to make a patent flour. A. I understand that.

Mr. Scarritt: I object to that, your Honor, because he has not said that there is such a thing as a patent flour.

The Court: Objection overruled.

Mr. Scarritt: We save an exception.

A. I could not tell you what a patent flour is, Mr. Butler.

Mr. Butler: I move to strike out that answer.

The Court: That is stricken out.

1845 (Last question read.)

A. I do not know what a patent flour is.

Mr. Butler: I move to strike the answer out as not responsive.

The Court: Yes, that is not responsive.

Mr. Scarritt: I object to that, if your Honor please. The witness has got a right to say that he don't know what an element of the question is.

Mr. Butler: Well, now, they like to argue these matters, but I do not.

Mr. Scarritt: I do not like to argue it; I want to make an objection.

Mr. Butler: This gentleman was talking about patent in his direct examination, where he could tell one from the other, and he knew then, and I do not think he has forgotten so soon.

The Court: This witness, in his testimony in chief, I understood, was testifying about patent flour. Now, if he wants [if he wants] to withdraw that, or says he doesn't know what patent flour is, I suppose that will end it.

Mr. Scarritt: I think your Honor is wrong in stating his testimony.

The Court: I understood him, in response to Mr. Elliott, that he was talking about patent flour. The witness will please answer the question. Did you say anything about patent flour in your testimony in chief?

A. Mr.—Judge, if the Court please, if it was, I didn't mean it in the sense that Mr. Butler means it.

The Court: Well, in what sense did you mean it?

A. Flours—I have seen flours labeled "patent". Now, under the evidence that has been—some millers have testified here, a smaller percentage, they called a patent—in that sense—

The Court: You don't know anything about what a patent is?

A. No, sir.

1846 The Court: That is all. Call another witness. This witness don't know anything about it.

Witness excused.

Alvah W. Esterbrook, called as a witness on behalf of the claimant, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. Mr. Esterbrook, state your name.

A. Alvah W. Esterbrook.

Q. What is your occupation? A. I am a chemist.

Q. Have you specialized along any particular line?

A. In flour, wheat, grain.

Q. Where do you live? A. Kansas City, Missouri.

Q. What business are you engaged in?

A. Engaged in the testing of flours.

Q. Have you a laboratory? A. Yes.

Q. Do you have facilities for baking bread in your laboratory? A. Yes, sir, we do.

Q. What kind of an apparatus have you for that purpose?

A. We have—well, a modified Koellner system—based on the Koellner system.

Q. You mean that is for preparing the dough?

A. Yes, sir.

Q. Now, what kind of an apparatus have you for baking the bread? A. We use an electric oven.

Q. I will ask you if you received from Mr. Friend two flours, to be made by you into bread?

A. What was the name, please?

1847 Q. Mr. Friend, who testified here. A. Yes.

Q. Were you here when he testified? A. No.

Q. I hand you Exhibits 254 and 255, and ask you if you can identify them as being the loaves of bread that you made from the flour delivered to you by Mr. Friend?

A. Yes, sir, I can.

Q. Tell us how you identify them.

A. They are marked by me "Hannibal Milling Company, bleached" and "Hannibal Milling Company, unbleached".

Q. Now, I want you to tell me how you made those two loaves of bread, giving me the ingredients you placed in each, and the baking and all of that. Give us the details, in other words, of making those two loaves of bread.

A. I used 340 grams of flour in each loaf. Each loaf is exactly the same, a duplicate of the other, as far as quantities and weights and measures and temperatures are concerned. I used 340 grams of flour, 12 grams of sugar, 5 of salt and 10 of yeast, 187 c.c.s. of water in each loaf, and the ingredients were placed in the mechanical mixer, Koellner style, and kneaded exactly 20 minutes, and then the dough was divided on the balance, and made into two loaves, and placed in a pan, and allowed to raise to a gauge placed over the pan, and when it had reached that gauge, the loaves were placed in an electric oven, and the temperature kept at exactly 300, and both baked for exactly 30 minutes. Then, the dough was weighed before it went into the oven, and the loaves were weighed as they came out of the oven, and I got the loss in baking, and, by use of a displacement seed box, we got the volume of the loaves.

Q. Now, I will ask you whether there was any difference made by you in the baking of these two loaves. Were they both baked, so far as you know, under exactly the same conditions?

A. Both of them were baked under exactly the same conditions.

Q. Prepared in exactly the same way?

A. Exactly the same way.

Q. Now, I believe you made a baking for Mr. Gootch, did you not? A. Yes, sir, I did.

Q. I hand you Exhibits 243 and 244, and ask you to state if the flour from which those loaves were made was

hand you by Mr. Gootch, and if you can identify those loaves as being made from that flour?

A. They were not handed me by Mr. Gootch, but by a representative of the Gootch Milling Company.

Q. Who was that? A. Mr. Roth.

Q. Mr. Roth was the witness here? That is correct. Now, are you able to identify those loaves as being made from that flour handed you by Mr. Roth? A. Yes, sir, I can.

Q. By what manner?

A. I see my marks on them,—“Gootch No. 1” and “Gootch No. 2”, placed there by me.

Q. Now, will you please tell us how you prepared those loaves, what ingredients you used, and the details, as in the other case? A. These two loaves—

Q. (Interrupting) Wait. Was one of these flours bleached, and the other unbleached? A. I was told so.

Q. All right.

Mr. Butler: Of course that would be hearsay.

The Court: Did you test them to see whether they were bleached or not?

A. No, sir.

The Court: This other witness was to be supplemented by this one. The other witness covered that.

A. The two loaves were made with the same apparatus, and under the same conditions as the other two I have described, using the 340 grams of flour, 12 grams of sugar, five of salt, 12 of yeast, and in this case, 192-2.3 ccs. of water.

Q. Does that mean that this flour required a little more water, or a little less?

A. That flour needed more water than the other, to make the right kind of dough.

The Court: Which did?

A. Gootch No. 1 and 2, required more water than the other.

1849 Mr. Scarritt: What was that?

A. Water.

Mr. Scarritt: What was the amount of the yeast?

A. 10 grams.

Mr. Scarritt: You said 12 grams.

A. It was 12 of sugar, and 10 of yeast.

By Mr. Elliott:

Q. Now, just so there will not be any mistake, give us those ingredients you used, over.

A. 340 grams of flour, 12 grams of sugar, 5 of salt, 10 of yeast, and 192-2.3 c. cs. of water.

Q. Was there any difference in the manner of preparing, and in the manner of baking these loaves, as between the two flour? A. None whatever.

Q. They were both made and baked under the same conditions? A. The same.

Q. I will ask you if, in your experience as a baker, will different flours have different absorptive qualities for water? Now, the flour used for making Exhibits 254 and 255 was a different flour from that used in making Exhibits 243 and 244?

A. Yes, sir, entirely different.

Cross Examination

By Mr. Butler:

Q. Mr. Esterbrook, in either of these bakings that you have referred to in your direct examination, did you raise the bread as high as you could? A. No, sir.

Q. The raising takes place during fermentation, is that what it is called? A. Yes.

Q. So, in all of these cases you stopped the fermentation before it reached the maximum? A. Yes, sir, in all cases.

Q. That is so that you could not see which was the best, which was the toughest and strongest, wasn't it? It had that effect? I don't mean any improper purpose.

1850 A. That was so we could see which was the best.

Q. So you think if you had left them go on and raise to the full capacity, to see which one broke down first and let the gas escape, that would not be a good way to find out which dough was the toughest. A. No, sir.

Q. You think a good way to find out which dough is the toughest is just as soon as it got a little gas in there at all, is to stop the fermentation, and bake them, do you?

A. No, sir.

Q. Well, you did not let them rise very much? Here is a woman down here at Castle, who used some of the bleached flour. See that loaf of bread? A. Yes.

Q. That don't look much like yours, does it?

A. Not much.

Q. Not much, no. I asked somebody who was on the stand here this morning why it was that one bleached flour was very yellow and the other was very light. I do not know which one it was. It was that old fellow. It was Mr. Billings, came in here, and he told me about baking flour that was brought down by Shoecraft, from Clinton, I think, that was made by Wells,

Abbott, Neeman Company, that he used the "Yellow" method, and, therefore, his bleached flour bread was not near as white as the bleached flour bread that Mrs. Kitwell made, from Castle. It means this, doesn't it, that a baker can make about the kind of bread he is after, doesn't it, if he knows how?

A. Yes, he can.

Mr. Butler: That is all.

Redirect Examination

By Mr. Elliott:

Q. Mr. Esterbrook, what method of baking did you employ?

A. Koellner.

Q. From your knowledge of baking, do you understand that this is a different method of baking? A. Yes, sir.

Q. Made by a housewife? A. Yes, sir.

Q. What would that be termed?

A. Domestic method.

1851 Q. I will ask you if the method of baking you employ is known by you to be adapted to testing the baking qualities of flours? A. It is.

Q. Is that the test that you regularly employ—the kind of baking? A. Yes, sir.

Q. You made no difference in the manner of your testing or baking, in this, from what you use in any other flours, would you? A. No, sir, no difference at all.

Recross Examination

By Mr. Butler:

Q. Don't the millers, when they are testing the quality of their gluten, in the mill, make a loaf, one of which would be about as big as eight of these little things you have brought in?

A. I don't know of any such method.

Q. Don't they use, great, big loaves, and distend them enormously, so that they are not comparable at all with the ordinary bread that we find on the tables?

A. I have never seen that method used in a mill.

Q. Well, have you ever seen it used anywhere for testing?

A. No.

Q. Is this the mill method? A. Yes, sir.

Q. That you have used? A. Yes, sir.

Q. And that is the method for testing the strength of gluten, to see how far it will go?

A. No, not necessarily that.

The Court: I cannot hear you.

A. No, sir.

By Mr. Butler:

Q. No, of course it isn't. Well, now, isn't it a fact that, at the mills where they have laboratories for baking, they often, at least—I do not say usually,—but sometimes for the purpose of ascertaining, make a loaf, the cross section of which would be larger than that (indicating) the big piece of paper that I have here?

1852 A. I never saw any such method.

Q. You never worked in any such place, did you?

A. I never tested like that.

Q. You never worked in any such place, did you, in a mill?

A. No, sir.

Q. Now, when you are testing the strength of something that breaks—gluten breaks if over expanded, doesn't it?

A. Yes.

Q. Well, now, it is like rubber, isn't it? Comparable to rubber, and is called resiliency?

A. A little bit, yes, sir.

Q. So, when you are comparing the dough of the one and the dough of the other, it is like comparing the strength of two rubber bands, isn't it? A. Yes.

The Court: What?

A. Yes, somewhat.

Q. Now, if you subject them to the same pressure, and they come out the same length, that doesn't tell which will break first, does it?

A. Well—I see your illustration, but I don't consider it to be of any value whatever.

Q. I do not care what you consider; when I want to know what you consider, I will ask you.

Mr. Butler: I move to strike that out.

The Court: Yes.

By Mr. Butler:

Q. Now, I say, unless you expand them until one broke, you cannot find out which will hold the most, can you?

A. What are you talking about?

Q. Your dough, if you want to, or your rubber, or anything that you are comparing, to see which is stronger, you have to put a breaking test on, don't you?

A. If you will tell me what you are talking about, I will answer.

Q. If you do not know, I will not ask you any more questions.

1853 A. You are talking about a rubber and then dough. If you will tell me which you are talking about, I will answer, but not until.

Q. You do not understand me?

A. If you do not talk plain English, I cannot understand you.

Q. We will get an interpreter for you, next time.

Mr. Butler: That is all.

(Court thereupon adjourned to meet at two o'clock p. m., Friday, June 24, 1910.)

Pursuant to adjournment court met at two o'clock p. m., and proceeded with the trial of said cause further as follows:

Henry Stark, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. What is your name? A. Henry Stark.

Q. Where do you reside? A. Clinton, Missouri.

Q. What is your business? A. I am a miller.

Q. Are you a practical miller? A. Yes, sir.

Q. How long have you been engaged in the milling business? A. Since '73—about thirty-two years.

Q. What is the name of your mill?

A. The White Swans Mill, of the Bulte Milling Company. The offices reside here in Kansas City.

Q. The White Swans Mill of the Bulte Milling Company? A. Yes, sir.

Q. And you say their office is here in Kansas City?

A. Yes, sir.

Q. What is the capacity of that mill?

A. We can make about twelve hundred barrels. We have got a double mill. We can double it up so we can run about twelve hundred barrels in twenty-four hours.

Q. Are you familiar with the Alsop process? A. Yes, sir.

Q. Have you an Alsop machine in your mill there?

A. Yes, sir.

Q. How long have you had that Alsop machine in your mill?

A. I think in the neighborhood of five years or a little more.

Q. Now, are you familiar, Mr. Stark, with the flour that has been treated by this Alsop process? A. Yes, sir.

Q. Have you ever examined it to ascertain if there was any foreign or unnatural odor imparted to it by the bleaching process? A. You mean the flour?

Q. Yes. A. No, sir, there ain't.

Q. Have you made examinations of bread made from bleached and unbleached flours? A. Yes, sir.

Q. I will ask you if you have ever noticed any difference in taste or smell in such bread? A. I have not.

Q. What effect, if any, have you observed, bleaching by this Alsop process, to have upon flour?

A. Well, it—by running it through the process, it lightens the color—makes it whiter.

Q. Now, I will ask you, take a flour that has been bleached, as compared with a flour that has been stored and naturally aged. Are there [are] similarities in characteristics in quality, and so forth, between these two flours, and if so, what would you say they are?

A. Well, now, of course that all depends upon conditions. You can store a flour in a warehouse, in packages, or sacks where it gets plenty of air, it will bleach out—get whiter, from the air, and lose some in weight, you know, by drying out.

Q. Now, compare such flour with flour that has been bleached by the Alsop process.

A. Well, now, there is a difference, in the same way. 1855 Flour that you let it bleach, and have it in a cool place, you can get it pretty near as white, or as white as you could do, with artificial bleaching.

Q. If I understand it, the bleaching produces the same color as the natural aging. A. Yes, sir.

Q. When flour is naturally aged, does it improve it in quality—baking qualities and so forth?

A. Well, now, of course, it makes it whiter. The baking qualities, of course, makes it better by changing the mill, some. You can go to work and change your grinding—

Q. (Interrupting) Now, let me put it this way. You take a new flour. A. Yes.

Q. A flour from a new wheat. A. Oh, yes.

Q. Now, take that flour, and store it, and age it for two months or three months. A. Yes.

Q. Will that aged flour possess better properties for baking than the new flour? A. No, it won't.

Q. It won't possess any better properties?

A. No, indeed not.

Q. In your judgment, will the baking qualities of a naturally aged flour be any better than a new or green flour?

A. The aged flour is better.

Q. I want to compare the flour from a new wheat—a new flour with a flour that has been aged and conditioned by storage for two months, or three months, or any number of days.

A. Of course, she dries out, and becomes whiter, and she bakes whiter.

Q. Bakes whiter? A. Yes, sir.

Q. Now, what would you say as to a new flour that has been bleached by this Alsop process,—what effect would that have on such properties?

A. Well, now, we have a mill there that we bleach the patents and the second grade, and we find that the bleaching the flour, also dries it, and it stops this runny substance in the new flour, when you send it to the market. We have had lots of complaints before we used the bleacher.

Q. I will ask you if in your judgment bleaching has 1856 the same effect on flour as natural aging.

Mr. Butler: I think I will object to that as leading.

The Court: It is leading, Mr. Elliott.

Mr. Elliott: I withdraw the question.

Q. I will ask you if you have observed whether or not bleaching flour by this Alsop process has the same effect on flour as naturally aging it, and if so you may state your conclusions. A. It has the same effect, yes, sir.

Q. Now, I would like to ask you, Mr. Stark, to tell us, in your judgment, what aging of flour is, or conditioning. We have had these terms. What in your judgment is the effect produced in flour by aging and conditioning it—storing it, that is, for three or four months? What effect is produced in the flour?

A. When you first put it in, it looks kind of yellow, you know, and when you age it, the longer you store it, it seems like the lighter in color it gets, and it dries out somewhat, and makes it in good condition for bread making. Of course, that all depends, too. You take a barrel of flour that is closed up in wood, and the air don't get to it, that will not bleach in proportion to the flour that is in sacks.

Q. Are all flours improved by aging?

A. Well, I don't know about that. I don't think so.

Q. Now, tell us in what cases there would be flours, if any, that would not be.

A. Well, it is different. Now, you take, for instance, an unsound flour, you grind bad wheat, and you put that back there, the longer you let it lay, the worse it gets, spoils it. It gets musty, you know.

Q. Now, suppose you take a flour from unsound wheat, and bleach it by this Alsop process, how would the result be in that case?

A. Be the same way. Be all in the same condition.

Q. In your judgment is this a correct statement, that flours that can be improved by natural aging can be improved by bleaching, and that flours that cannot be improved by natural aging cannot be improved by bleaching?

Mr. Butler: We object to that as leading and suggestive, and calling for the witness's conclusion.

1857 The Court: That is very leading, Mr. Elliott.

Mr. Elliott: I will withdraw it.

The Court: You have a miller here. He ought to be able to go on and state the facts.

By Mr. Elliott:

Q. Now, how does treatment by this Alsop process compare with naturally aging, where you are dealing on the one hand with flour from sound wheat, and on the other hand with flour from unsound wheat?

A. Sound wheat? Well, that would bleach and bleach white, but the unsound wheat—well, while you may get a color on it, at the same time, it is not sound. If it has inferiority in it, it won't keep, that is all.

Q. Do the conditions of the atmosphere, in the place where you store flour, and the manner of packing the flour—the manner in which it is packed, have anything to do with the extent to which it will age and condition when you store it?

A. Sure.

Q. What is the effect?

A. As I said before, if you have got a warehouse, and get good ventilation through it, of air, and pile your flour so that your air can get through it, it dries it, and bleaches it, the longer you let it stand, you know, and of course, it dries out some, and of course if you put it in a damp—in a place that you don't have any good ventilation, then it will take longer to bleach. That has been my experience.

Q. Now, I will ask you, aside from what you have already testified to, as the effect of bleaching, if you have noted any other advantages which you derive, if any, from the use of the Alsop process.

Mr. Butler: You mean financial, Mr. Elliott?

Mr. Elliott: No, sir, as respects the flour.

A. Well, now, there is one good thing I have found out, in using the bleacher, is this: I recollect when I did not use the bleacher, that I have to use considerably finer cloth.

By the Court:

Q. What?

A. Considerably finer cloth—silks—and ground considerably closer, which, of course, means more power.

By Mr. Elliott:

Q. Now, just let me interrupt you there. Why would you grind finer?

Mr. Butler: Wait a moment. This is all the economic side of it, is it not?

The Court: Undoubtedly.

Mr. Scarritt: No. Wait until we get through.

The Court: I will wait until you get through.

Mr. Scarritt: We are going to get to the quality, in a minute.

The Court: All right.

A. By grinding very hard, you can grind color onto flour.

By the Court:

Q. Sir?

A. You can grind color onto flour, by grinding closer, by jamming the rolls all up, which of course, is not very practicable, because it takes lots more power, and more oil.

By the Court:

Q. Oil for what?

A. Oil for the journals, to keep cool, you know, and, besides, you make a soft flour. We find that our trade demands a white flour, and a granular—

Mr. Butler: (Interrupting): Wait a moment. In view of the form of the question, I fear that a speech was planned on, and I move to strike out what he found about his trade, as immaterial.

The Court: It is very hard to distinguish. I will let it stand, and, at the close of the case, I intend to charge the jury with reference to this question of economy of production, and so forth.

By Mr. Elliott:

Q. Tell me what effect, Mr. Stark, grinding flour finer, as you have stated, has on its color.

A. Well, it makes—grinding it finer, we also fine up on the cloth, you know.

1859 By the Court:

Q. On what? A. Your silks.

By the Court:

Q. What? A. Silks.

By the Court:

Q. Silks?

A. The white bolting cloth. The bolting cloth, and the silks. There is no mill can do without bolting cloth, and silks.

Q. Now, what effect on the quality of flour does the grinding the flour close have?

A. Now, here is the point. It is not as salable, as if you get the granularity in it. Now, if we want to use the other—say, for instance, you stop the bleacher right the way it is,—just stop it—your flour is going to be kind of yellow. You have got to go to work, and, in order to get some color on it, and get it white, you have got to fine up on your cloths, and jam up on your rolls, and of course, that means more power, and more oil, and, not only that, but, when you do that, you can make at least—I know the way I am using it now, I can make more than one hundred barrels more, in twenty-four hours, than I ever could then, because it bolts freer, by using coarser cloth, and by grinding granular, makes the flour granular.

By Mr. Scarritt:

Q. Does that make it better, is what we want to get at.

A. Makes it better, yes, sir.

By Mr. Elliott:

Q. Now, I will ask you if you have got some samples of flour that you can illustrate this with.

A. The grinding of color?

Q. Yes. A. I have.

Q. Will you produce it? A. (Witness does as requested.) Now, here is the three samples. Here is the granular flour, after bleaching.

Q. Well, we will have this marked.

1860 By Mr. Scarritt:

Q. What do you mean by granular flour?

A. Sharp, you know, granular—not ground down fine, but just granular.

By Mr. Scarritt:

Q. You can feel the granular substances in it?

A. Yes, with your fingers. You know the miller does most of his business, with feeling, you know.

By Mr. Scarritt:

Q. Testing that way? A. Yes, sir.

By Mr. Elliott:

Q. Now, I hand you Claimant's Exhibit 257, and ask you to state what that is.

A. That is the granular flour, after bleaching.

Q. I hand you Claimants' Exhibit 258 and ask you to state what that is.

A. Granular flour, before grinding, or bleaching.

By Mr. Scarritt:

Q. Before grinding?

A. Before grinding or bleaching. This is the product, now, that we bleached.

By Mr. Elliott:

Q. I hand you Exhibit 259, and ask you to state what that is.

A. That is the granular flour after grinding. You grind the color on it, you know.

Q. Now, will you put these out on a board, so we can tell which is which? A. (Witness does as requested.)

Mr. Elliott: We offer these in evidence.

By Mr. Butler:

Q. How much yellow berry was in the wheat that made this flour?

Mr. Elliott: What is this for?

Mr. Butler: Aren't you going to offer these?

Mr. Elliott: Yes.

The Court: Suspend the offer until he has cross-examined.

Mr. Butler: I want to object to the introduction of this, because it does not show that it is comparable at all with the flour in question.

The Court: Are you through with your examination in Chief?

1861 Mr. Elliott: No.

The Court: Then it may be identified now, but not be offered in evidence until later on, until Mr. Butler cross-examines him.

By Mr. Elliott:

Q. Now, I will ask you to state what this flour is, at the left of this board, at the point marked "One".

A. That flour is the same as in the middle, here, only it is ground, to get the color, you know.

Q. That is, then, a finer flour?

A. Yes. It is ground. That makes it finer. Every time you grind it, it gets finer.

By Mr. Scarritt:

Q. You can grind it, and get the color in, or get it out?

A. Get your color in by grinding it. You get your color in, you know, by grinding it close.

By Mr. Scarritt:

Q. You mean the white color in?

A. Yes, makes it whiter, or lighter.

By Mr. Scarritt:

Q. When you say color, you mean white?

A. Certainly. It makes that whiter.

By Mr. Elliott:

Q. Now, the flour at the right, at the point marked "Two" what is that?

A. That is the same coarse, granular flour, in the middle, only it ran through the bleacher, you know.

Q. That is a granular flour, bleached? A. Yes.

Q. Now, the flour in the center is what?

A. That is the granular flour, that we had, that we took out just like that, to show how it can be bleached white, and how it can be ground white, you know.

Mr. Helm: You are offering all of these exhibits you have identified, Mr. Elliott?

1862 Mr. Elliott: I am going to offer them later, when Mr. Butler gets through. Well, I offer all of these as exhibits.

The Court: The ruling is suspended until the cross-examination of the witness is concluded.

By Mr. Elliott:

Q. Now, as respects the different grades of flour, I will ask you what effect bleaching has upon the color of these grades, as respects their relative color, before bleaching and after bleaching. A. What flour is that?

Q. Any flour. Any grades of flour you may name.

A. I would like to have you say that again.

Q. Take your grades of flour. Now, what effect, if any, does bleaching have on the color of those grades, as respects their relative color before bleaching and after bleaching?

A. Well, it makes them whiter, of course, and the relative color will be just the same.

Q. Between the different grades?

A. Different grades, you know.

Q. Now, to what extent does bleaching change the color of flour? A. That is to what extent it changes it?

Q. Yes.

A. That all depends upon how much bleaching you use.

Q. Now, let me give you an illustration. Suppose you take your high grade flour, and bleach it, and then compare with flour after being bleached, with say chalk, or starch, or some very white substance, how would the color of them compare?

A. It will not make it near as white as that. It would just make it lighter colored. It makes it some whiter. You do not get it as white as chalk, or anything of that kind. It would make it look yellow, against white chalk.

Q. Did you visit the Rex Mills Company, with Mr. Friend?

A. No, sir.

Q. Have you brought in some samples of your bread?

A. Yes, sir.

Q. Will you please produce them?

A. Yes, sir. (Does so.)

Q. I will hand you Claimants' Exhibit 260 and 261, and ask you to state what they are.

A. 260 is supposed to be the—is the "Bulte's Best".
1863 That is the hard wheat, bleached, and the 261 is "Bulte's Excellent", soft wheat.

By Mr. Butler:

Q. Bleached? A. Yes, both bleached.

By Mr. Elliott:

Q. Now, who made the bakings of these loaves for you?

A. Why, I brought some samples, and took them down to Mr. Esterbrook, at the American Laboratory Company, I think.

Q. Kansas City?

A. Kansas City. Southwestern Flour Laboratory.

Mr. Elliott: I will recall Mr. Esterbrook.

Q. Now, tell us again, please, which of these was 261.

A. 261 is "Bulte's Excellent", made out of soft wheat, bleached.

Q. 260?

A. 260 is "Bulte's Best", bleached, made out of hard wheat.

Mr. Elliott: I will offer these exhibits in evidence.

Q. Are these loaves that are cut, corresponding loaves?

A. Yes, sir. They are corresponding loaves, both of them. You see the names on top "Bulte's Excellent" and "Bulte's Best".

Q. Does your mill sell bleached flour to B. Howard Smith, or the Consumers Bread Company of Kansas City?

A. I have nothing to do with that. I don't know. I am just running the practical end. That is all done at the main office, up here.

Q. You do not know about the selling of it? A. No.

Cross-Examination

By Mr. Butler:

Q. The main office of your mill is here in Kansas City?

A. Yes.

Q. You are a practical miller, are you, Mr. Stark?

A. Yes, sir.

Q. And have been at the business a good long while?

A. About thirty-seven years.

Q. What part of Missouri? I am not very familiar with it.

1864 By the Court:

Q. That is northeast, about one hundred miles?

A. Yes.

By the Court:

Q. On the Frisco? A. Frisco.

By Mr. Butler:

Q. Do you live at the same place Mr. Shoecraft lives?

Mr. Lyons: No, this is Clinton, Missouri.

By Mr. Butler:

Q. You have eleven hundred barrel capacity?

A. Well, twelve hundred. Maybe as high as twelve hundred. That all depends upon the condition of the weather, and the condition of the wheat, you know.

Q. Did I understand you to claim that you can control the color, by milling methods?

A. You can, somewhat, when you make your soft flour, yes.

Q. Make it too fine? A. Makes it too fine.

Q. So, you can grind the color onto it?

A. You can get it considerably whiter, but not quite as white as with the bleacher, but then you get it whiter, you know.

Q. Light color is desired in flour, isn't it?

A. Yes, that is what we want—light color, certainly.

Q. And you could make one hundred barrels more a day, at the same cost, with the bleacher, than without it?

A. I did not say that. I said by changing the cloth coarser, and grinding coarser, that makes it bolt freer, and by that, you can add more wheat, you know.

Q. So, if you threw your bleacher away, it would cost you one hundred barrels a day of product, because you would have to change your mill, and grind it more, wouldn't you?

A. You would have to change your cloth, and then just simply grind it closer, in order—that is, in our trade, they demand white flour.

Q. You would have to grind it white, instead of bleaching it white? A. Yes. It would make it a little softer.

1865 Q. And if you threw your bleacher away, or threw off the bolt, so you did not use it, it would cost you one hundred barrels a day of product, wouldn't it? You would have to readjust your mill?

A. Yes, sir, that is right.

Q. So, the bleacher saves you what it costs to make one hundred barrels of flour a day?

A. That is, the condition of the weather, too.

Q. And, to get about the same quality of color?

A. Well, you will get it granular, with the bleacher.

Q. Yes, I understand. Now, that bleacher is kind of a handy thing to color with, isn't it? A. Yes.

Q. The more bleaching, the whiter it gets, up to a certain extent?

A. Up to a point. I do not bleach very heavily.

Q. So, if you have a valve—do you have a valve on your intake pipe? Don't you? You have an intake pipe, that takes the air into the electrifier? A. Yes.

Q. With the Alsop bleacher, near the gas producer?

A. Yes.

Q. And you have a valve on that, don't you?

A. We have.

Q. Some kind of a thing to shut off the fresh air coming in?

A. The fresh air, coming in.

Q. If you shut it off a little, it bleaches stronger?

A. Well, I thought it did, but sometimes it don't. It all depends on the condition of the weather.

Q. But I know, if there is no change in the weather?

A. Yes.

Q. Take a clear day.

A. If you shut off some, it will change, but, if you shut it all off, it won't go up.

Q. The gas won't go up?

A. No. You have got to have ventilation to get it up.

Q. So that, by just turning the valve, here, it saves all the trouble of readjusting the mill, and grinding it down for the color, doesn't it?

A. Yes. Readjusting the—yes, yes, certainly.

Q. If you controlled the color by grinding, you would have to readjust your mill? A. The whole mill.

Q. It would cost you, say ten per cent more—about 1866 one hundred barrels a day, out of twelve hundred?

A. Yes.

Q. And this Alsop machine that you have, all you have to do is just to wiggle the valve a little, to control the color?

A. Yes, you understand, but you get the granulation.

Q. Yes, I will come to that later. But, now as respects color, alone. A. Yes.

Q. All you have to do is just to turn a little valve, like that (indicating)? A. Yes.

Q. Sometimes you have to turn on a little more amperage, if it isn't making it strong enough?

A. Yes, a little more voltage. That is right.

Q. So, that is of immense financial advantage, isn't it?

A. Yes.

Q. Really, in the course of a year, it would be a tremendous advantage, to be able to control the color of your product by just turning that valve?

A. That is the way they are all controlled.

Q. Yes, of course. You are telling me about it a little nicer than most of them though. You grind some soft wheat, probably.

A. We grind all soft. Now, that is, we have got a hard wheat mill, but we do not run it all the time.

Q. You are speaking of soft wheat? A. Yes.

Q. Soft wheat is a good pastry wheat flour?

A. Yes, sir.

Q. Commanding a good deal higher price in the market, here, they tell me, in Kansas City, than the hard wheat flour.

A. We have a good trade on our flour.

Q. And, for pastry, the finer they get the flour, the better it is, isn't it, if it is white and soft, and nice?

A. That all depends, too. You can get it so fine it will not bake. It gets all mushy, and won't raise.

Q. So, your observation of this feature is, it not only changes the color, but it changes the granulation?

A. Yes, indeed. That is, if the miller--

Q. (Interrupting) If the miller knows how to use it?

A. Yes. That's the idea.

1867 Q. Some millers don't get as much good out of the bleacher, as others, you think? Isn't that true? They don't know how to use it?

A. I don't know.

Q. You think you get all there is in it, out, don't you?

A. I am trying to get all there is in it out, yes, sir.

Q. Now, let me see. Somebody has told me, here in court, that there is a flour known as patent flour. Is there?

A. Patent?

Q. Yes.

A. Why, when we first started milling, from stones and changed to the rolls, when we first got the middling, we called that the patented flour, but we do not have "patent" on our sacks.

Q. When did you take it off? When the roll process came in, or when the government made this order?

A. Oh, no. Here is the stock. Here is our Bulte's Excellent. We go by the brand. Here is the Bulte's Excellent.

Q. Did you ever make a patent flour, labelled patent?

A. How is that?

Q. Did you ever make a patent flour that you labelled patent? A. Oh, yes.

Q. When?

A. Oh, that has been—we called it "White Swan Patent".

Q. When did you do that? A. Do that now.

Q. So, then, you are making a patent flour now?

A. That is named Patent, but it is really—that is our best flour—supposed to be the patent, but that is Bulte's Excellent. Haven't got "Patent" on it.

Q. Did you ever make any kind of a patent, except the "White Swan Patent"? A. No, sir.

Q. Is that the only patent flour that was sold under that name?

A. Yes, "White Swan Patent", yes.

Q. Is it a patent? A. Yes, sir.

Q. What percentage is it? A. Well, now, we—

Q. (Interrupting) Now, Mr. Stark, I don't want to inquire into these percentages.

A. That is it. That is what I am going to tell you right now. The trade is different. Some people want a shorter patent, and some want a longer patent, and we have different brands.

1868 Q. And percentages is usually considered a trade secret, isn't it? A. Yes.

Q. And millers are very unwilling to divulge it, as a rule?

A. Yes.

Q. Because that gives their competitors a chance to tell their customers what their percentages is. That is it, isn't it?

A. Yes.

Q. So, you have observed, in the thirty-seven years of your business, that there is a good deal of diffidence and unwillingness on the part of millers to tell what percentages they make?

A. Oh, yes. Some of them are right out, and some of them ain't you know.

Q. Now, how do you feel about it?

A. Well, I don't feel like letting the competitors know what I am doing—what percentages I am making—making a short patent, or making a long patent.

Q. Do you suppose these other millers, who are here, now, helping in the defense of this law suit, would take advantage of you, if you were to tell your percentages?

A. I don't know whether they would or not. I don't think they would.

Q. Then, let us have them, if you think you can trust these other fellows, that are here.

A. We make about forty, "Excellent", and about a forty of "Swan", the second. That is the second grade, you know. Then a ten per cent low grade—what we call low grade. That is what we run it. We have got different runs, though. We have got a straight run, where we take out about a five per cent.

Q. You do not hesitate so much to tell about the forty per cent, as you do about the ninety-five per cent, do you?

A. Oh, I don't know. There is no secret about it. We do not care about publishing our percentage.

Q. Well, now, do I get the impression from you that it damages flour to grind it, so that it is white?

A. Yes, sir. You can damage flour, that you can get all kinds of complaints, if it is ground too soft.

Q. The bleaching by the Alsop process doesn't make it [an] finer, does it.

A. No. That is where you have got the advantage of
1869 getting further apart on your rolls, and of course, on your cloth and still have the color. You can get the color without it.

Q. Now, you can get the color by the bleaching process, that equals the other, by grinding? Grinding so much will be the equivalent to Alsop bleaching medium, so much?

A. By grinding?

Q. Yes. A. No, it would make it too soft.

By the Court:

Q. The flour? A. You could not get as much.

By Mr. Butler:

Q. You can get it cheaper, and get more of it from the Alsop machine? A. Yes, sir.

Q. Now, you say that the grinding of flour fine hurts the quality of it? A. How is that?

Q. Do you say that the grinding of flour fine hurts the quality of it? A. Yes.

Q. Were you here when Mr. Larabee testified yesterday?

A. No, I went out.

Q. Do you know Mr. Larabee's mill, out at Hutchinson?

A. No, sir. I have never been there.

Q. Were you here when Mr. Abbott testified that Mr. Larabee could, by good milling methods, make a lighter flour, ninety per cent patent, than some of them could make a seventy-five per cent patent, that did not have as good milling methods?

Mr. Scarritt: We object to that, if your Honor please, object to him stating the testimony of other witnesses, as improper.

Mr. Butler: I want to find out from him whether he knows Mr. Larabee's mill, and I want to find out from him whether that is the way to ruin flour, or make good flour.

The Court: He may answer.

Mr. Scarritt: Mr. Larabee never said anything about grinding fine.

Mr. Butler: Abbott said so.

1870 Mr. Scarritt: No, he said by improved machinery.

The Court: Go on.

A. I don't know what Mr. Larabee said.

By Mr. Butler:

Q. Don't you know about his mill over here at Hutchinson?

A. No, I do not.

Q. He has a mill that grinds twice as much as anybody else's mill. A. Maybe. I don't know.

Q. And he makes ninety per cent, before bleaching, and since bleaching, and his flour is lighter than a seventy-five per cent flour, and it is in the markets of the world, everywhere, all over the country, and abroad; his mill is of concrete; he has the best machinery that is made; spends money on it; keeps it clean, and keeps the weevil out of it. Now, do you say that that kind of milling injures the product of wheat?

A. The kind of milling he does?

Q. Yes.

A. If he grinds it down it would, just the same, yes. That is, I am speaking, from a soft wheat standpoint.

Q. Oh, you are speaking from a soft wheat standpoint?

A. Yes, sir.

Q. How much yellow berry was in this flour you brought in here? A. A don't know.

Q. What did you bring this in for? To show how you can grind color into it?

A. Yes, grind color into it, exactly.

Q. None of these is bleached?

A. Yes, one on the outside is bleached, there.

Q. The middle one is a bleached?

A. No, the middle one is the granular stock.

Q. Are there three kinds here?

A. Yes. There is one bleached, there, that ain't quite as white, you know, at the end.

Q. Now, where is the bleached—at the middle, or at the end? A. At the end.

Q. And then, the one in the middle is the granular, isn't it?

A. Yes. All three are the same quality.

Q. And the one at the left hand end is not bleached?

A. No. No, that is not bleached.

1871 Q. So, the whitest, here, is ground?

A. Yes, sir. That reduction, there.

Q. Now, come here, and let us explain that all to the jury.

Mr. Scarritt: That goes in evidence.

By Mr. Butler:

Q. This is all from soft wheat? A. Yes.

Q. No turkey in this, and no yellow berry in it? A. No.

Q. It is the Missouri wheat?

A. It is the Missouri wheat, I think. Now, I'll tell you what we done, in order to get that, to show that you can grind color into it, we went over here to the nearest mill—Wagener-Gates Company.

Q. Oh, this was not ground at your mill? A. No.

Q. Wagener & Gates? A. Yes, sir.

Q. Do they have an Alsop machine around there?

A. They have, I guess.

Q. You are sure that none of the gas got into the flour—this flour?

A. No. That was before. That come off the roll, you know, before ever it got near the gas.

Q. But you are sure the gas did not go up in the mill, and bleach it? A. No, I guess not.

Q. Now, there are three colors here. The lightest color is made by grinding, the middle one is made by bleaching, and the other color is the natural color. Am I right about that?

A. Yes. Now, I want to explain that.

Q. Now, let me make that plain. I will give you a chance to explain it. Now, I want to ask you, because how this thing looks will never appear in the record, unless we state it. The part that is bleached is in the middle, you said?

A. No. This is it.

Q. At the end? A. Yes. This is the product of—

Q. (Interrupting) The lightest one, at the end, near the figure "1", was ground in?

A. Yes. That is as near as I can say. Now, we can put it out again, and make the same thing over again.

Q. No, that is all right. Now, that in the middle was 1872 not bleached? A. No.

Q. Not ground down so fine? A. No.

Q. And that other one, where the "2" is, is bleached?

A. Yes.

Q. Now, isn't it very hard for you to distinguish between the middle and Number 2?

Mr. Scarritt: Not from here.

Mr. Helm: We have got a dark light there.

Mr. Butler: Your Honor, I move to strike out the statement of Judge Scarritt.

The Court: I was not observing that, just then.

Mr. Butler: I was interrogating the witness with respect—

Mr. Scarritt: (Interrupting) No, Your Honor, he was testifying. He was telling what was there. He was testifying and I tried to testify, too and that's all there is to it.

The Court: Now, what was the question?

Mr. Butler: I was cross-examining the witness, in the form of leading questions, and I had asked him if it was not difficult to distinguish between two kinds of flour, the kind at the end next to the figure "2" and the kind at the middle, and Judge Scarritt, who was looking over the shoulder of a jurymen, interrupted and answer by saying "Not from here." I move to strike that out as improper.

The Court: If that occurred, that certainly should be stricken out.

Mr. Butler: That did occur.

Mr. Scarritt: But it occurred, Your Honor, in just a little different way, because he was telling the jury which was whiter, and which was not.

Mr. Butler: I was asking the witness a question.

The Court: Mr. Butler has a right to ask the witness leading questions, and you gentlemen have not, with your witness. Now, let him answer the question.

By Mr. Butler:

Q. Now, Mr. Stark, I want to examine you further concerning this sample that you prepared for Mr. Elliott, in your direct testimony.

Mr. Scarritt: We have not had a chance to offer it, if Your Honor please, and he has got it here before the jury, talking about it. But, we have no objection to that.

By Mr. Butler:

Q. Now, Mr. Stark, when I was interrupted by Judge Scarritt, I asked you whether or not it is not, here in this light, very difficult to distinguish between the specimen of flour at the end, nearest to the figure "2" and that in the middle.

A. Yes, sir.

Q. It is very difficult, isn't it?

A. Well, you could tell it, by holding it up.

Q. So that the color between the granular, in the middle, and the bleached at the end, nearest to you, is very nearly matched? A. I call that about a couple of shades lighter.

Q. But it is much closer together than the one that was ground down?

A. Now, whenever you are done, I want to answer your question.

Q. You will answer it right now.

A. I say there is two shades difference there.

Q. The one that is ground down, to the light color, is the whitest of the three? A. Yes, sir.

Q. And it is much more whiter—it is much whiter than the bleached sample, isn't it? A. Yes, sir.

Q. Therefore, the difference between the two unbleached samples is much greater than the difference resulting from bleaching. Isn't that true?

A. That is true. Now, I would like to explain it.

The Court: Go on and explain it. This is very unusual but you may go on and explain.

A. (Continuing) They are both granular, and the other is not granular. Now, you take that granular flour, and grind it, and then bleach it, it will be still whiter than the 1874 bleached flour—than that ground flour. That is what I mean.

Q. That is right. You can bleach down that white color that you get, and make it still whiter, can't you?

A. Yes, sir.

Q. What's that? A. Yes, sir, that is right.

Q. And you can bleach it until it comes down very near as white as that piece of chalk that I lay beside it, for the purpose of illustration? A. No, I do not think you can.

Q. Well, I know, but very near?

A. No. That is a bluish—I never bleach my flour that way.

Q. You don't like to make it like chalk, do you? A. No.

Q. Now, this thing that you have described with respect to soft wheat does not apply with the same degree of force with respect to the hard wheat? A. What?

Q. The soft wheat is weak in gluten, isn't it?

A. Yes. That is, compared to the hard wheat.

Q. The hard wheat is stronger in gluten? A. Yes.

Q. The Kansas hard is very strong in gluten? A. Yes.

Q. The turkey hard, isn't it? A. Yes.

Q. It will, therefore, stand a lot of grinding, won't it?

A. Grinding?

Q. Yes. A. Oh, yes, certainly.

Q. And you can grind it down to a nice color, too, can't you? A. Yes, but you won't grind it for hard wheat.

Q. If you grind it down nice and white, you might be able to sell it for soft wheat flour?

A. You can get it as white as soft wheat.

Q. Now, Mr. Stark, do you think, honestly, that it is better to control your color by nitric acid, than it is by mill methods?

Mr. Scarritt: We object to that as not based on the evidence, and calling for an improper conclusion.

The Court: He may answer.

A. You mean the electric bleaching?

Q. No, I mean nitric acid. A. The Alsop process?

Q. I mean nitric acid.

A. Well, I don't know anything about that.

1875 Q. Well, now, just let me put that at you, as an experienced miller. Do you think it is preferable to control the color of your flour by nitric acid treatment, in a liquid or gaseous form, than by milling methods?

Mr. Scarritt: Objected to for the same reasons.

A. Yes, I do.

Q. Did you ever bleach with it? A. No, sir.

Q. Did you ever hear of wheat being bleached by the sulphur fumes, or sulphur?

A. No, sir. Oh, I have read it, but I never saw it. Don't know anything about it.

Q. Did you ever hear about flour being bleached by sulphur?

A. No, sir.

Q. Now, wouldn't you rather control the color of your flour by some other chemical, than nitric acid, like sulphur? Don't you think it is a bad thing to put nitric acid in the flour?

A. I don't know anything about sulphur.

Q. But, you say, in order to save your fuel, and grinding, and oil, you would rather use nitric acid to control your color?

A. This Alsop electric bleacher, yes, sir.

Q. Now, you understand that nitric acid is employed by the Alsop electric bleacher? A. Of course, I am no chemist.

Q. But that is your understanding?

A. I understand it that way, yes.

Q. That is your understanding of it? A. Yes.

Q. Did you ever buy nitric acid in a drug store?

A. Never in my life.

Q. Did you ever see any nitric acid?

A. No, sir. Never had any use for it.

Q. You never saw nitric acid?

A. No, I don't believe I did.

Q. You don't know its properties? A. No, I do not.

Q. Do you know that nitric acid will dissolve copper and zinc?

Q. Oh, yes. But I have had no occasion to use it. Never saw it.

Q. So, you would rather put that kind of stuff in your flour, to control the color, than to spend money for oil and coal?

Mr. Scarritt: I object to this as incompetent, irrelevant and immaterial, and having nothing to do with the issues in this case.

The Court: The witness said he knows nothing about it. He may answer.

Mr. Scarritt: We save an exception.

A. Will you please read the question?

(Last question read)

A. Well, now I would say this. I do not believe there is no miller wants a bleacher that is injurious to health, or injurious to the flour. That, I don't know whether it is injurious or not.

By Mr. Butler:

Q. So you assumed then, when you answered that question,—you assumed that nitric acid in flour was harmless, didn't you? A. No, I don't know. I never tried it.

Q. But you must certainly think so, or you wouldn't put it in.

A. I never tried it on copper, to see whether it would eat copper, or not, and I don't know anything about it.

Q. Did you ever smell the gas? A. The fumes?

By the Court:

Q. The Alsop gas. A. Yes.

By Mr. Butler:

Q. Do you like it?

A. Oh, yes. It aint a very unpleasant smell.

Q. It is not very unpleasant? A. No.

Q. Do you smell it in the flour?

A. Not when you take it in the flour. You can smell it when it goes in the tanks, if you open the door.

Q. Can you smell it in the flour bin? A. No.

Q. Smell it when it comes out of the agitator?

A. If you open the door, yes.

Q. That is the flour bin, isn't it, where the flour runs in out of the agitator? Isn't that a flour bin?

A. No, I do not have a flour bin. This goes direct to the packer.

Q. And you can smell it, as it comes out of that?

A. You can, if you open the hole.

Q. You have to open it, in order to let the flour out?

A. No. That flour runs right into the sack.

Q. Well, we mean the same thing. I am not a miller. How big is your packer? A. The flour packer?

Q. Yes.

A. It has a round tube, where you put the sack on. A great many mills have hoppers. I do not have that.

Q. Do you make your flour yellow, sometimes?

A. Do I make it yellow?

Q. Does the bleaching make it yellow?

A. No. Never did any.

Q. Do you sometimes shut down your mill?

A. Oh, we have accidents, certainly. Every mill would.

Q. That would leave the agitator full of flour, wouldn't it, if you shut down your mill?

A. The minute you stop, your bleacher stops.

[A.] I supposed it did not stop.

A. The minute you stop your mill, you stop the bleacher.

Q. That is the way you are fixed, do you say?

A. Yes, sir.

Q. Supposing it was not fixed that way. What effect do you think it would have, pumping the gas in there?

A. It would bleach it too much, of course.

Q. What hurt would it do, if a little bleaching is good, why isn't a lot good?

A. It would probably make it too white. It would come bluish white, or too light in color. It would not do, you know. I do not bleach very much.

Q. You bleach very lightly? A. Yes, sir.

Q. How many horse-power do you have?

A. Oh, I think our machine is about six horse-power.

Q. For eleven hundred barrels?

A. Yes, sir. We have only got one machine for the whole business.

Q. And that is divided between how many bleachers?

A. Three. Only using two, though.

1878 Q. Is patent flour lighter than straight flour in color?

A. Oh, yes. Yes, but you may call patent—

Q. (Interrupting) Can you bleach one, and leave the other unbleached, and make them look very near alike?

A. Oh, no.

Q. What is that?

A. No. We do not bleach our low grade.

Q. I am not speaking about your low grade. I am speaking of your patent and straight. You bleach your straight, don't you? A. We make it straight sometimes.

Q. You can bleach your straight, it makes it lighter than a patent, can't you? A. No, you cannot.

Q. You cannot bleach a straight to make it lighter than a natural patent?

A. No, sir. Not considering the quality of it.

Q. I mean, make it lighter in color.

A. Oh, you can bleach it white, but if you put water on it, it gets dark, you know.

Q. Oh, if you bleach it too much, and put water on it, it turns dark? A. Certainly.

Q. If you over bleach it, it turns dark in water?

A. Well, not necessarily.

Q. What do you mean by saying it turns dark, if you bleach it too much?

A. You can make it a chalky white, but it is not a desirable color.

Q. So, you cannot make a natural color with the Alsop bleacher, can you? A. Natural color?

Q. Yes.

A. You could make it—bleach it up white, and make it according to the age of a couple or two or three months. Yes, you can, just the same.

Q. Can you adjust your machine so as to make it equivalent to a week's aging—bleach equivalent to a week's aging?

A. Yes, you can do that.

Q. The equivalent to a month's aging?

A. You can do that, too.

Q. To two months' aging? A. Sure.

Q. Three months' aging? A. Yes.

Q. Four months' aging? A. I never tried it that far.

Q. So, then you can make the soft, fresh flour match up with flour of a given age, and look alike in color, can't you.

1879 A. At that certain proportion, taking off the gas, yes, certainly.

Q. By controlling your gas? A. Yes.

Q. Now, is fresh flour an inferior flour, when it is newly milled, to flour that is naturally aged?

A. Sure, they are. It is not inferior, if they get good, sound wheat.

Q. Now, do you think putting nitric acid in it naturally ages it?

A. Running it through the process? Yes, makes it whiter.

Q. You told Mr. Elliott, as I understood you—

Mr. Elliott (interrupting): Now, if Your Honor, please I want to object to that previous question, because it is perfectly manifest that Mr. Butler is using this term "nitric acid" in one sense, and the witness is using it in another. He is not a chemist, and he is replying, as I understand it, on the basis of this process, and Mr. Butler is putting nitric acid to him, and I do not think that is fair.

Mr. Butler: I am going to put nitric acid to everybody, about this bleaching.

Mr. Scarritt: He is talking about the Alsop process.

Mr. Butler: The evidence shows in this case it is nitric acid, or tends to show it.

The Court: Go on.

By Mr. Butler:

Q. So, by the use of nitric acid, you can match fresh flour, in color, to flour of the same kind, of any age, up to three months?

Mr. Scarritt: Same objection.

The Court: He may answer.

A. Up to three months, yes, with the bleacher, you can make it the same.

Q. And that is what you do habitually, isn't it?

A. Certainly.

Q. Yes. So as to make your fresh flour look exactly the same as the naturally aged flour?

A. Sure, as near as we can.

Q. And you know that the naturally aged flour is better than it was when it was fresh, don't you?

A. Sure. It is whiter, you know, and it is dried out.

1880 Q. And you know, don't you, that the nitric acid used by the Alsop bleacher puts nitrites in your flour, which will show on the Griess test, right then and there? You know that, don't you? A. Well, no.

Q. Now, then, just a minute. Have you never applied to your freshly bleached flour this test—this clear liquid, that will bring out the pink color on the bleached flour, and won't bring it out before it goes through the bleacher?

A. I never tested that, no.

Q. Did you ever see that done? A. No, sir.

Q. Did you ever hear of it?

A. Yes, I have heard of it, but never saw it.

Q. Heard of others having done it? It is a matter of common knowledge, isn't it, among millers, that this Griess test will turn the freshly bleached flour, after it has been subjected to the nitric acid of the Alsop bleacher, pink, and that the flour, just before it goes into the agitator, will not turn pink. You know that don't you? A. No, sir, I do not.

Q. Do you know that the nitrites produced in the flour are poison?

A. I am no chemist. I don't know anything about that.

Q. No, but a man who will save one hundred barrels a day with nitric acid, rather than mill, is entitled to answer some questions.

Mr. Elliott: I now offer the exhibits in evidence, being numbers 257, 258 and 259.

Redirect Examination

By Mr. Elliott:

Q. Mr. Stark, I will ask you in respect to bleaching, if you have ever put anything into your flour, except the air as it went through this Alsop electrical machine, and went to the flour.

A. Never, no, sir.

Q. Did you ever buy any nitric acid and pour on your flour?

A. No, sir, never.

1881 Recross Examination

By Mr. Butler:

Q. You never used the Williams' process, that used nitric acid? A. No, sir, and I wouldn't have it, neither.

Q. Why not?

A. Because I understand it is kind of acid that you have got to bleach it with.

Q. You would not use the Williams' bleacher? A. No.

Q. You understood that the nitric acid used by Williams is poisonous?

A. That is the way I understand it. I would not use it.

Q. But you understand the Alsop process uses pure air?

A. Pure air, with the electric flame going through.

Q. Now, if it were shown to you that the Alsop process uses exactly the same gas, called NO₂, nitrogen peroxide gas, then you would throw that out, too, wouldn't you?

A. Yes, if they could prove it to me.

Q. Now, if it was shown to you that the Alsop process has convicted the Williams' process of infringing, because it uses the same gas, you would feel like throwing theirs out, wouldn't you? A. I don't know about that.

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

Witness excused.

John T. Shram, called as a witness on behalf of the claimant, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Scarritt:

1882 Q. You may state your name.

A. John T. Shram.

Q. Where do you live?

- A. 607 West 38th, Kansas City, Missouri.
 Q. What is your business?
 A. I am head miller for the Southwestern Milling Company.
 Q. That is the mill that has here been spoken of? What is the brand of flour that you prepare?
 A. We put out, for our best brand, "Aristos".
 Q. "Aristos" flour? A. Yes, sir.
 Q. That is the brand of flour you make? A. Yes, sir.
 Q. Have you an Alsop bleacher in your mill? A. We have.
 Q. Just state to the court and jury when you commenced using that bleacher at that mill.
 A. Well, pretty near four years ago; about three years and ten months since we used it at the Southwestern mill.
 Q. Well, while you were using it, did you bleach all your flour?
 A. We bleached it all, up to the first of March a year ago.
 Q. First of March, 1909? A. Yes, sir.
 Q. Then you stopped bleaching all your flour? A. Yes, sir.
 Q. Then, when did you begin again?
 A. We began along about January.
 Q. January of what year?
 A. 1910, and bleached up until March—well, about the last of March, as near as I can remember it.
 Q. 1910? A. Yes, sir.
 Q. Then, you stopped again? A. Yes, sir.
 Q. And during all that time, when you were bleaching, you bleached all your flour? A. All the flour bleached, yes.
 Q. Including the "Aristos" brand? A. Yes, sir.

Cross-Examination

By Mr. Butler:

- Q. Is there any "Aristos" that is not bleached?
 A. There is "Aristos" that is not, since the first of March. No "Aristos" bleached from the first of March 1909, until about January 1910.
 Q. I have been given to understand that the "Aristos" 1883 patent found in the markets of Kansas City is an unbleached flour.

Mr. Searritt: At the present time.

A. Yes.

By Mr. Butler:

- Q. And varying kinds? You do not know, of course, how fast it was consumed, and some may be out yet, that was bleached in the old days?
 A. It might possibly be; I do not know, but we have not bleached any flour at home here, for anything out—

Mr. Butler: That is all.

Witness excused.

B. Howard Smith, called as a witness on behalf of claimants, being duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Searritt:

Q. Your full name is Mr. B. Howard Smith? A. Yes, sir.

Q. Where do you reside? A. 3038 Park Avenue, this city.

The Court: Kansas City, Missouri?

A. Kansas City, Missouri.

By Mr. Searritt:

Q. How long have you resided in Kansas City, Missouri?

A. About 25 years.

1884 Q. What is your present business?

A. Bread baking business.

Q. How long have you been in that business?

A. About 30 years.

Q. Where?

A. Indianapolis, Indiana, and at Kansas City, Missouri.

Q. Have you been in the bread baking business ever since coming to Kansas City, Missouri? A. Yes, sir.

Q. How many bakeries have you at this time under your control? A. Six.

Q. All located at Kansas City, Missouri?

A. Five at Kansas City, Missouri.

Q. Where is the other one? A. Kansas City, Kansas.

Q. What character of bread do you bake? What I mean is, do you bake any pastry, anything of that kind?

A. No, sir; all bread.

Q. Light bread, and rolls, and biscuits?

A. Bread and rolls.

Q. You sell it on the market here? A. Yes, sir.

Q. Is it generally used here? A. Yes, sir.

Q. How many loaves of bread a month is your output?

A. About 1,700,000.

Q. A month? A. Yes, sir.

Q. That includes your six plants, does it?

A. Yes, sir.

Q. Or does it leave out your Kansas City, Kansas, plant?

A. It includes all of them.

Q. Of course, we all understand that the dividing line between Kansas City, Missouri, and Kansas City, Kansas, is simply an imaginary line, about the middle of one of our principal streets? A. Yes, sir.

Q. All practically the same city? A. Commercially, so.

Q. Commercially the same city? A. Yes, sir.

Q. One million, how many loaves?

A. Seven or eight hundred thousand loaves.

Q. Almost 2,000,000 loaves a month?

The Court: How much?

A. One million, seven or eight hundred thousand a month.

By Mr. Scarritt:

1885 Q. Do you use bleached flour in baking your product?

A. We use about 50 per cent bleached.

Q. Bleached flour? A. Yes, sir.

Q. And the other 50 per cent unbleached flour?

A. Yes, sir.

Q. Why do you mix them?

A. We get a better loaf of bread out of the two mixed, than we do out of either alone.

Q. Have you ever made bread from bleached flour, itself?

A. Yes, sir.

Q. What is the character of that bread, made out of bleached flour in quality and strength, as compared with the bread made out of the same flour unbleached?

A. I never have seen any difference.

Q. What is the difference in color of the bread made out of bleached flour, as compared to that made out of the same flour, unbleached? A. None, that I know of.

Q. No difference in color? A. No, sir.

Q. The bleached flour made a lighter loaf?

A. No, not that is discoverable.

Q. What is the difference in the quality of the bread made out of unbleached flour, from new wheat, as compared to bread made out of bleached flour?

A. Well, the difference is this, that flour newly ground, or delivered to the bakery, soon after grinding, or made from new wheat, shows a youngish appearance, does not have the volume. It is pretty hard to make a decent loaf of bread out of it.

Q. Does it dough up as well?

A. It doughs up as well, but the gluten does not show the same degree of quality.

Q. I have heard some of these bakers talking about "running." Does it run?

A. Yes, well, you might say slacks, slacks in the dough,—softens up some.

Q. Will flour of that character make as good a loaf of bread as the same flour bleached, after being bleached?

A. No, sir, it does not, whether it is artificially or
1886 naturally bleached.

Q. From whom do you buy your bleached flour?

A. At the present time we are using the principal part of the ground flour ground by the Bulte Milling Company.

Q. That is managed by the gentleman who was just last on the stand? A. I don't know that.

Q. Did you hear Mr. Stark's testimony?

A. I did not discover what mill he represented.

Q. But it is the Bulte Milling Company?

A. Yes. They have two mills, I believe.

Q. Which is the other mill?

A. I think they have a mill down in Clinton, Missouri, where they grind soft wheat.

Q. And you get flour from both mills?

A. No; we don't use anything but the hard wheat flour.

Q. And that is ground in the mill here? A. Yes, sir.

Q. When you use hard wheat flour, from what locality, if you know, does this wheat come? A. Kansas.

Q. Where do you dispose of your produce, principally—your bread?

A. Principally in Kansas City, Missouri, and Kansas City, Kansas. We ship some to the country.

Q. You bake it and sell it right here? A. Yes.

Q. Use it in the restaurants and the clubs and the homes, and all around, generally? A. Yes, sir.

Q. Who are your principal competitors, if you have any?

A. Our principal competitor is the housewife.

Q. That is, if you don't make as good bread as she does, she won't buy from you? A. Yes, sir.

Mr. Butler: We object to that as incompetent, irrelevant and immaterial.

The Court: Objection sustained.

By Mr. Scarritt:

Q. But you do dispose of practically 2,000,000 loaves a month?

1887 A. Something less than that.

Q. In this vicinity? A. Yes, sir.

Q. And all of your bread that you sell, now, is made half out of bleached flour and half out of unbleached flour, mixed?

A. Yes, sir.

Q. What brand of unbleached flour do you use?

A. We are using, and have been for the last several months, "Pillsbury's Best".

Q. What was the brand that you used previous to that?

A. We have used several different brands of Minnesota and Dakota flours, in the past.

Q. Just one other question. You have been in the city here for twenty odd years? A. 25 years.

Q. And when you came here, you came here to engage in this same business that you are in now? A. Yes, sir.

Q. Where were you located when you came here?

A. Ninth and Oak streets.

Q. How much of a plant did you have?

A. Well, I had one oven, and an output of about 500 loaves a day.

Q. One oven, and 500 loaves a day? A. Yes, sir.

Q. How much help did you have?

A. I had about two bakers, and one wagon.

Q. Two bakers and one wagon? A. Yes, sir.

Q. Outside of yourself? A. Yes.

Q. Yourself, and two bakers, and one wagon?

A. Yes, sir.

Q. And your business, during that time, has increased from what it was then, to what it is not? A. Yes, sir.

(No cross-examination.)

Witness excused.

1888 J. A. Gillis, called as a witness on behalf of the claimants, being first duly sworn, was examined by Mr. Scarritt, and testified as follows:

Direct Examination

By Mr. Scarritt:

Q. What is your name? A. J. A. Gillis.

Q. Where do you reside?

A. Kansas City, Missouri, 2630 Gartfield Avenue.

Q. What is your present occupation?

A. Manager of the Mid-Day Club.

Q. That is the club on the 14th floor of the Commerce Building?

A. Commerce Building.

Q. What is your vocation, or profession?

A. Manager of hotels, clubs, and restaurants.

Q. Where were you located before you became Manager of the Mid-Day Club?

A. Green Bay, Wisconsin.

Q. Where were you located previous to going there?

A. On the Santa Fe Railway, Harvey System.

Q. Harvey System of the Santa Fe Railway?

A. Yes, sir.

Q. Have you been in those positions during the last five or six years? A. Yes, sir.

Q. And, for some time before that, on the Santa Fe System?

A. Yes, sir.

Q. The Harvey eating house system? A. Yes, sir.

Q. What was your business in Wisconsin?

A. Manager of a hotel.

Q. What was your business when you were with the Harvey System?

A. The same; manager of hotels.

Q. Manager of their eating houses? A. Yes, sir.

Q. What kind of bread do they use at the Mid-Day Club, over here?

A. They use bread baked by this Smith Bakery, entirely.

Q. Entirely? A. Yes, sir.

Q. Have you ever had any experience or observation of bleached flours, previous to going over here to the Mid-Day Club?

A. I used bleached flour for the last six years—nearly six years. Ever since they commenced to make it.

Q. You used it in Wisconsin? A. Yes, sir.

Q. And did they use it on the Harvey System?

A. Yes, sir.

Q. In the stations that you managed? A. Yes, sir.

Q. Why did you use it?

A. Well, we thought it was better flour than the other—made nicer bread.

Q. In what respect?

A. Well, it was sweeter, I think, and firmer.

Q. Lighter in color? A. Yes, sir.

Cross-Examination

By Mr. Butler:

Q. You think bleaching changes the taste of bread, and makes it sweeter?

A. I think it makes it sweeter, that is all.

Q. Is it a distinct change? A. Slight.

Q. Are you familiar with the chemical action that results in that, that produces the sweetness?

A. No, I don't know anything about that.

Q. You have spent a great deal of your life, I take it, catering to the tastes of people? A. Forty years.

Q. I suppose you have become quite familiar with the tastes of people and qualities of food, and so forth?

A. Yes, sir.

Q. Are you familiar with flour bleaching?

A. No.

Q. That is, you are familiar with bleached flour?

A. Yes, sir.

Q. You do not have to do with the methods, but with the products, I take it? A. Yes, sir.

Q. And of course, flour being an important matter, you would become familiar with the bleached product?

A. Only in the difference that it made in the loaf. That would be all.

1890 Q. And, in other important articles of food, have you considered the effect of other substances, too, I have no doubt, upon taste? A. Some.

Q. You use, in your business, some oat meal, and sugar, and cream? A. Yes, sir.

Q. Have you come across the use of formaldehyde in that?

A. I never have.

Q. You don't know, then, what effect formaldehyde would have upon the flavor of the oat meal and milk and cream, do you? A. I don't know.

Q. And coffee? Have come across some coffee that was made to look nice by the chromate of lead?

A. No, sir.

Q. You don't know whether chromate of lead affects the color? A. I never tried it.

A. And, French peas? Do you know that substance?

A. I know French peas.

Q. Have you ever been able to ascertain what the effect of copper sulphate, used to preserve the French peas, was?

A. No, sir.

Q. Well, have you furnished some cod cakes, sometimes, to your customers? A. Occasionally.

Q. Do you find some borax in that? A. I never have.

Q. Have you learned what effect borax, in cod fish, has?

A. No.

Q. Or boracic acid, in eggs? A. No, sir.

Q. So, then, the only thing that you have been able to notice in the way of food adulteration was that bleached flour changes the taste of the bread slightly, and makes it whiter?

A. That is the only article that I have ever had, in that line. I have never used anything with formaldehyde in it, that I know of.

Q. How can you tell? Watch it from the time the cow lets the milk down?

A. But the pure stuff from a fellow that you know is honest; that is all I can go by.

Q. Just go by character? A. Yes, sir.

1891 Q. What test have you made of peas, for sulphate of copper?

A. I have never tested them.

Q. You know that formaldehyde is used in milk—not from experience.

A. I have heard that, but I have never seen it used.

Q. But you have guarded against it, haven't you.

A. As much as possible.

Q. And you know the coffee berry was polished over with a chromate of lead?

A. No, sir. I never heard of that.

Q. You know that borax was put in buttermilk, to keep it?

A. No, sir.

Q. Never guarded against that? Or sulphate of copper, in French peas? A. Never knew that.

Q. Or saccharin in canned peaches?

A. No, sir. I know there is sugar in canned peaches, that is all I know—fruits.

Q. So the only thing you ever heard of—

A. (interrupting) I have heard of all those things you have mentioned, but I say I have never used them.

Q. But I know; But, as a matter of common reputation, all those things have been used to adulterate foods?

A. They have been. I don't know whether they have, since the pure food law went into effect or not.

Q. But, respecting bleached flour bread, you say the bread is sweeter? A. I think it is, yes, sir.

Q. Improves the flavor distinctly?

A. I can notice it.

Q. How is that?

A. I think I can notice the difference.

Q. So you are able to notice the difference in taste between bleached flour bread, and unbleached flour?

A. Well, I might be fooled in that.

Q. Oh, I know; I am not going to grab any loaves, and run up to you and ask you to try them. I mean, as a general proposition, can you?

A. What I mean is this. I have never seen where bleached flour has made any deterioration in bread.

Q. But, on the contrary, it makes it sweeter?

A. Yes, sir.

Q. But what the chemists say of the sweetness, whether it is the sweetness of health, or the warning of a peril, you don't know, as a pharmacologist, or toxicologist, or a chemist, or anything of that sort?

A. No, sir.

Redirect Examination

By Mr. Scarritt:

Q. Did you ever hear, Mr. Gillis, that the Government allowed these peas that are being talked about, to be preserved with sulphate?

Mr. Butler: We object to that.

The Court: Objection sustained.

By Mr. Scarritt:

Q. How many members of the Commercial Club are there?

A. Mid-Day Club?

Q. I mean the Mid-Day Club. A. 450.

Q. You serve meals there, and they all eat there, off and on?

A. Off and on, during the month; average 150 to 250 a day.

Q. That is the Club that Mr. Ward and Frank Hagerman, and some other gentlemen here organized? A. Yes, sir.

Q. Now, how many people did you have eating at your hotel, up in Wisconsin during the years you were there?

A. About 208.

Mr. Butler: There will be no dispute about him being an expert.

Mr. Scarritt: I am not qualifying him; I am qualifying the public.

Q. You had about 200 a day, at your hotel up there?

A. Yes, sir.

Q. How many people, on an average, eat at your Harvey eating—houses, on the Frisco, every day?

A. On the Santa Fe? From 300 to 500 a day.

Witness excused.

1893 W. C. Dunn, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Scarritt:

Q. What is your name? A. W. C. Dunn.

Q. Where do you live? A. Independence, Missouri.

Q. What is your business? A. I am a miller.

Q. What mill or mills are you employed in?

A. Wagoner-Gates Milling Company, Independence, Missouri.

Q. How long has that mill been in existence there?

A. I don't know. I know it for 23 years.

Q. You do not know how much longer it has been there?

A. No.

Q. Have you been with it for 23 years?

A. Lacking about 60 days.

Q. You are head miller there? A. Yes, sir.

Q. Has that mill installed in it an Alsop bleacher?

A. Yes, sir.

Q. When was it installed? A. Four years ago.

Q. Did you bleach all the grades of your flour?

A. We have.

Q. Do you sell that on the market here?

A. Some of it in Kansas City, yes, sir.

Q. You have a grade that you sell principally to the family trade, do you? A. Yes, sir.

Q. Has that grade been bleached?

A. Yes, sir; has been.

Q. Where do you buy your wheat?

A. We get as much local wheat as we can, and buy it everywhere ye can find the wheat we need. I don't know anything about the buying of the wheat.

Q. You know where it comes from, from the cars and things of that kind—you know it comes from Kansas and around here? A. Yes, sir.

Q. Now, what effect does the bleaching have on flour, with respect to aging it?

A. Well, some of the flour it will whiten—has a tendency to dry it. Some, it dries, and has a tendency to darken.

Q. Now, what flour does the process have a tendency to dry, and which it whitens? A. Well, the higher grades.

Q. What flour does this process have a tendency—and it also takes some of the moisture out of the high grade?

A. The process of bleaching has a tendency to dry the higher grades, and to whiten them. That is what I mean to say.

Q. And have a tendency to take some moisture, also, out of the lower grades? A. Yes, sir.

Q. Now, is it possible, in your experience or observation, to make a low grade of flour, by bleaching it, look like a higher grade of flour that is unbleached? A. No, sir.

Q. In your experience and observation, does the bleaching of the different grades of flour have the same influence, as to color, respectively, or does it make the lower grades a little darker, and the higher grade a little lighter?

A. I think it makes the lower ones darker; and the higher grades whiter.

Q. I believe you said that the bleaching of the flour was the same as the aging of the flour? I do not know whether you answered that question or not.

A. Practically the same thing.

Q. That is, the Alsop bleacher has the same effect, on flour that it acts on at all, as nature has, on flour that it acts on, in time?

Mr. Butler: That is leading, and because it is leading, I will object to that.

The Court: It is leading.

By Mr. Scarritt:

Q. What effect, in your observation and experience, does the Alsop process have in bleaching of the higher grades, in respect to aging?

Q. Well, it has the same effect as aging.

Q. Now, you say that a lower grade can not be made, by bleaching, to resemble a higher grade, unbleached, or a high grade, bleached?

A. I cannot do it; I have tried it.

Mr. Butler: That is objected to as leading, and I move to strike that out.

Mr. Scarritt: I have not finished the question yet.

The Court: Go on.

1895 By Mr. Scarritt:

Q. Have you made any tests in that regard?

A. Yes, sir.

Q. Will you take out these things, Mr. Dunn. I am afraid I will disturb them (referring to exhibits). I believe your mill makes two grades of flour, doesn't it?

A. Yes, we make four.

Q. Now, I hold in my hand three glass panels, upon which there appears to be some flour? What do you call it—mixing it out this way—slicked out? A. Yes, sir.

Q. I will get you to state what that one is, that I now hand you? A. That is a low grade flour.

Q. That is a low grade flour? A. Yes, sir.

Q. I notice on one side you have "S. R. B." What does that mean? A. Standard R. Bleached, "Red Dog."

Q. I noticed on the other side, "S. R. R. D. B."

A. That is Standard R, Red Dog, Bleached. This is a low grade flour, and this is the red dog that is taken out of the flour, and put together, to show the difference.

Mr. Scarritt: I will have that marked Claimant's Exhibit 252.

(Which was accordingly done.)

Q. I hand you another glass panel, and ask you what that is?

A. It is the same flour, separated the same way, only unbleached; low grade, unbleached.

Q. Low grade unbleached? A. Yes, sir.

Mr. Scarritt: I will have that marked Exhibit 353.

(Which was accordingly done.)

Q. I hand you a third one, and ask you what that is?

A. This is red dog taken out of the bleached, and that is red dog taken out of the unbleached, and put together, to show the difference, that bleaching does not benefit it.

Mr. Scarritt: I will have that marked as an exhibit.

(Marked as Exhibit 254 by the reporter.)

1896 Mr. Butler: I move to strike out his answer, that bleaching does not benefit it.

The Court: That may be stricken out.

By Mr. Scarritt:

Q. What does that "S. R." mean?

A. Standard R. Bleached. Standard represents our grade.

Q. "R" represents the grade?

A. That is our private mark, and this is a standard sample.

Q. How did you make that test? How did you make that sample?

A. With a hand sieve, covered with a silk bolting cloth, and took it and whatever went through the cloth, is this one, and what refused to go through is that one (indicating).

Q. And then what did you do?

A. Put it on this glass, and dipped it in water.

Q. Is that the bleached or the unbleached?

A. That is the bleached.

Q. Which is the lower, and which is the higher grade of flour?

[Q]. This is the highest grade of the two, and that is the lowest, that is the Red Dog.

Q. No. 1, on the 252 is the higher grade of flour, and No. 2 is the lower grade, and they both went through the same process of bleaching, did they? A. Yes, sir.

Q. And to the same extent?

A. Went through at the same time.

Q. And that was in an attempt to make the two look alike—bleach out alike? A. Yes, sir.

Q. Is the same thing true with reference to 253? A. Yes.

Q. The higher grade is marked No. 1, on 253, and the lower grade is marked with a 2?

A. No, you misunderstand me. This product is taken out of this. That is a standard sample, showing that that kind of stuff, there, is in this.

Mr. Butler: Wait a moment Mr. Dunn. We object to you stating what they show. You should identify them,
1897 and tell what they are.

By Mr. Scarritt:

Q. Tell what these are.

A. That is a standard sample of unbleached flour. This is the red dog, that is sieved out of that flour by hand sieve. It was originally one flour, bleached as one.

Q. Bleached flour? A. Yes, sir.

Q. And the darker part shows the darkness that was in—that is, No. 2 shows the darkness that was in No. 1 and 2 together? A. Yes, sir.

Q. That is right, isn't it? A. Yes, sir.

Q. And in this one that we have just had marked 252, No. 2 shows the darker product that was in No. 1 and 2 together?

A. Yes, sir.

Q. Now, is the same true with reference to No. 254?

A. No. 254 come from No. 252.

Q. No. 254 came from No. 252?

A. Yes, sir. No, no. This one (indicating); No. 2.

Q. No. 2 of 254, came from 252,—it is the composition of one and two, in 252? A. Yes.

Q. And what is the No. 1?

A. Composition of this one (indicating).

Q. It is the composition of 1 and 2, in No. 253?

A. Yes.

Q. Now, what does that indicate? In other words, the coloring matter, or the coloring of these respective samples shows what was in the previous samples, don't they?

A. Yes, sir.

Mr. Scarritt: I offer these in evidence.

Q. As I understand it, they show the difference in the grade of bleaching of lower and higher grades of the same flour?

A. Yes, sir.

Q. Now, Mr. Dunn, you saw that flour, before bleaching, didn't you—the samples of which you have here?

A. Yes, sir.

Q. I will get you to state if the impurities or darkness of color in the flour were more apparent after bleaching, than before? A. Sure.

Q. Is it possible to bleach a lower grade of flour, with the impurities that are ordinarily in the lower grade of flour, so as to make it look like a flour of higher grade, that is unbleached? A. No, sir.

Mr. Butler: That is objected to as repetition.

The Court: He has given his answer. Now, let us get at something else, now.

By Mr. Scarritt:

Q. If there occurs in any grade of flour, a defect or impurities, what effect will the bleaching process have on that flour, with respect to revealing those defects or impurities?

A. It don't change it any.

Q. It don't change the defects or impurities, with reference to seeing them? A. That brings them out plainer.

Mr. Butler: Objected to as leading.

By Mr. Scarritt:

Q. How is that? A. It brings them out plainer.

The Court: That is self evident and plain enough, if you don't bleach a defect, and you do bleach the other, you have got the contrast.

By Mr. Scarritt:

Q. Is the yellow color in the ordinary hard winter wheat, a disqualification in that flour, or a defect in it?

A. I do not grind it.

The Court: What?

A. I don't grind hard wheat; I grind soft.

The Court: He did not ask you that. He did not ask you what you ground. Read him the question.

(Last question read.)

The Court: Say yes or no, or that you don't know.

1899 By Mr. Scarritt:

Q. Is it, in any wheat?

A. Well, the only thing is, the color is a detriment.

Q. And this bleaching process removes the color?

A. Yes, sir.

Cross-Examination

By Mr. Butler:

Q. Does bleaching make the bread sweeter, Mr. Dunn?

A. I don't know.

Q. Never tried the bread?

A. I have eaten bleached bread for quite a while.

Q. Is it sweeter? A. I could not tell you.

Q. Can the color be controlled by milling methods?

A. To a certain extent, yes, sir.

Q. Can you save 10 per cent of your oil, and 10 per cent of your fuel, by using the Alsop bleacher?

A. Well, if I had to mill that flour up to what the Alsop bleacher would put it, I would say about 30 per cent of power.

Q. 30 per cent? Do you sell "Red Dog" as a commercial flour? A. Yes, sir.

Q. As a commercial flour? A. Yes, sir.

Q. Under what brand?

A. Nearly always brand the private brand "R".

The Court: What?

A. "R".

By Mr. Butler:

Q. Is that brand for "Red Dog"? A. Yes, sir.

Q. You brand Red Dog "R", for its initial?

A. I don't know whether that is it or not.

Q. Were all of these flours you brought in here prepared in the ordinary way?

A. They are the standard grade, yes, sir.

Q. But you sieved them by hand?

A. It was made in the mill, in the regular way.

Q. Do you sieve it by hand, in the regular way, in the mill?

A. I always separated it by hand, that way.

1900 Q. So, these flours you brought in here are not in the same shape you send them out?

A. That one (indicating) is marked standard.

Q. And the rest is different?

A. The only difference is they have been separated, and part of the separation is here, and part of it ain't.

Q. That is all made from soft wheat flour?

A. As near as I can tell, yes, sir.

Q. Who got you to make these up?

A. I made them myself.

Q. Who got you to do it?

A. Well, the fact of the matter is, I have been experimenting a little bit myself, looking around, seeing what I could find out.

Q. Well, did you want to shed some light on this case?

A. Not particularly so; I would rather not have been here.

Q. Who got you to do this? Some gentlemen on the other side?

A. No, I cannot say that; I cannot say that I have been solicited here at all.

Q. Who got you to pick this up, and sieve these out by hand? A. I done it myself.

Q. Well, now, why wasn't that done, here, in Le Flang's mill, where this flour was made that was seized?

A. I could not say.

Q. You think it would be a better comparison with the flour that was seized, to use the same mill, the same milling methods, and the same wheat, [that] it would be to go off to somebody else's mill that you don't know anything about, using a different flour, and a different wheat, and different milling methods? A. I can't tell you about that.

Q. You know the soft wheat is milled differently from hard wheat? A. Yes.

Q. You know it produces a different flour? A. Yes.

Q. You know it produces flour of a different color?

A. Yes.

Q. And texture and quality, and value?

A. Yes, sir, that is right.

1901 Q. You know all that? Now, why did you wet these things down, before you brought them in here? They are wet, I see. Why did you bring those in here wet?

A. Why did I wet them? So I could see the process.

Q. In dipping it in water, it brings out the difference more?

A. Yes.

Q. So, you went to all this trouble, sieving by hand, in a soft wheat mill, slicking it down, and wetting it up?

A. Only two ounce samples.

Q. Yes, only two ounce samples, and mounting them on glass, and coming in here to show what could be done in your mill, if you worked it right? A. Yes, sir.

Q. But you do not claim that has anything to do with the flour that is seized?

A. Not a thing in the world.

Q. Not a thing in the world? Neither do I. Does bleaching darken flour? A. Low grades.

Q. The flour, or the dirt? A. The dirt.

Q. Darkens the dirt? A. Yes, sir.

Q. Makes the flour lighter, and the dirt darker?

A. Well, if you separate them, that is so, but as a grade, it darkens the grade.

Q. Well, I know, but wherever there is flour—

A. (Interrupting) Whitens it.

Q. So that you have to do some milling in order to do some bleaching? A. Yes, sir, you bet you do.

Q. Have to get some of the dirt out, don't you?

A. Yes, sir, you bet you do.

Q. You cannot save all the oil and the fuel, by the Alsop bleacher, can you? A. No, sir.

Q. You have to mill some, don't you? A. You bet.

Witness Excused.

1902 E. D. Lyle, called as a witness on behalf of the claimant, being first duly sworn, was examined and testified as follows:

Direct Examination

By Mr. Scarritt:

Q. What is your name? A. E. D. Lyle.

Q. Where do you live? A. Leavenworth, Kansas.

Q. What is your business? A. Flour milling.

Q. Where is your mill?

A. Leavenworth, Kansas.

Q. Right in town, or near the Fort, or where?

A. Right in the heart of the city.

Q. That is about 20 miles from here?

A. 26 miles north.

Q. What is the capacity of your mill?

- A. 1500 barrels.
- Q. 24 hours? A. Yes, sir.
- Q. Does it run at its full capacity?
- A. When we can get the orders.
- Q. Ordinarily, what is your output? A. Sir?
- Q. What is your usual output?
- A. It will run from 300,000 to 400,000 barrels a year.
- Q. How long has that mill been established?
- A. The mill was built in '82.
- Q. 28 years ago? A. Yes, sir.
- Q. It was there, then, before you went in business, wasn't it? A. Yes, sir; I was there 20 years ago.
- Q. Do you use the Alsop bleacher in your mill?
- A. Yes, sir.
- Q. How long have you been using that?
- A. About four years, I guess.
- Q. Do you bleach all the grades of your flour, or just some?
- A. Everything but the low grades.
- Q. How many grades do you have?
- A. Our standard run is four grades.
- Q. Do you bleach these four grades for both state and interstate business?
- 1903 A. The three higher grades; not the low grades.
- Q. You mark your sacks, "Bleached" for your state trade?
- A. What is sold in the state of Kansas.
- Q. How has your trade been? Did you mark them bleached before the law of Kansas required them to be marked "bleached"? A. No, sir.
- Q. Did you bleach your flour before that time?
- A. Yes, sir.
- Q. What has been the effect of that, on your trade? Has it hurt your trade any to mark "bleached"?
- Mr. Butler: I object to that as irrelevant and immaterial.
- The Court: Objection sustained.
- By Mr. Scarritt:
- Q. What has been the output of your mill, before and after that time? Has it been larger or smaller?
- A. Practically the same.
- Q. Practically the same? What effect, if you can tell the jury, does the bleaching have upon the flour, with respect to aging it?
- A. It has the same effect that three or four months' bleaching would, on new wheat.
- Q. When you say three or four months' bleaching on new wheat—
- A. Or aging, I should say.

Q. You mean aging by natural processes?

A. By natural processes, yes, sir.

Q. Now, as I understand, if you take flour from new wheat, and lay it aside for three or four months, it will naturally age, as you millers call it?

A. Yes, sir, dry out.

Q. And this process has the same effect on the new wheat, when ground?

A. Yes, sir. It whitens and dries it.

Q. Does it affect its quality and strength in any degree, that you can, in your experience, observe?

A. I never have been able to find any detriment to the flour from bleaching.

1904 Q. That is, from the Alsop bleaching?

A. Yes, sir.

Q. Distinguish, please, between the Alsop bleaching—call it the artificial bleaching, if you want to, or artificial bleaching, and the other natural bleaching; so we can distinguish between the two. A. All right.

Q. You have said that, if you take new flour and bleach it, that, by the process, it has the same effect as if you take that new flour, and allowed it to age for three or four months?

A. Yes, sir.

Q. Suppose, instead of taking new flour, you should take flour that was older than new flour—take older flour, and grind it, and bleach it by the process, and take the same character of flour, and allow it to age, what would be the comparison?

A. For colors, we have a standard color that we mill to all the time, and we bleach the wheat that we grind, so as to make that color. Some wheat is yellower than others, and requires more bleaching than others, others less.

Q. If I understand you, it is a question of the degree that Nature has already bleached it, as to what application you make of the process.

Mr. Butler: That is objected to as leading; and also it discloses a very great misunderstanding on the part of Judge Scarritt, because the flour does not bleach before the wheat is milled.

The Court: Without reference to that, it is leading.

A. Old wheat will make whiter flour than new wheat.

By Mr. Scarritt:

Q. And, therefore, it has bleached to that extent, before it is milled? A. Yes, sir.

Q. And, when you apply the Alsop process, and bleach it, you bleach it up to the standard? A. Yes, sir.

Q. And, when you apply the Alsop process to your new wheat you bleach it to the standard?

. Yes, sir.

1905 Q. Now, does that have any different effect, in either case? A. Simply a matter of the gas you use.

Q. Upon the quality and strength of the flour?

A. No, sir.

Q. Have you made any bread from this bleached flour, or had any made?

A. I have been eating it on my table, ever since I have been bleaching it.

Q. Is it a rancid bread? A. No.

Q. Sour bread? A. No.

Q. Got yellow balls in it? A. No, sir.

Q. Has it got the yellow accumulation, of dirty, nasty stuff that has been secreted in the corners of your pipes, and your agitator, and other places? A. No. We make good flour.

Q. There is nothing of that kind in there? A. No, sir.

Q. Have you had occasion to change your pipes in your mill since you put it up?

A. Yes. We remodeled last year, and took the bleachers—

Q. (Interrupting) How long had they been in there before that time? A. Approximately three years or more.

Q. Had they been eaten out by gas?

A. No, sir. We put them back and re-used them, just the same.

Q. Had they been busted by the pressure of the gas upon the pipe? A. No, sir.

Q. Split open? A. No, sir.

Q. Nothing of that kind? A. No, sir.

Q. What is the odor of this bread made from this bleached flour, as compared with the odor of bread made from unbleached flour? A. Never detected any difference.

Q. What is the taste?

A. Never detected any difference.

Q. How is it, as to loaf volume, or quantity?

A. Never detected any difference.

Q. In other words, it sizes, up, just the same as the flour that is bleached by the natural process?

1906 A. I think so.

Q. Can you bleach unsound flour, so as to make it look like sound flour? A. No, sir.

Q. Can you alter the character, the quality, or strength, or defectiveness in a flour, by bleaching it? A. No, sir.

Cross-Examination

By Mr. Butler:

Q. Are you a miller?

A. Proprietor. Not the operating miller.

- Q. Are you a miller by trade? A. No, sir.
 Q. There is a trade known as that of a miller?
 A. Yes, sir.
 Q. And you are not a miller? A. No, sir.
 Q. You do not follow the trade of milling? A. No, sir.
 Q. Is your office in the mill?
 A. In the mill building, yes, sir. It is all connected.
 Q. In the mill building? A. All connected.
 Q. How many grades of flour do you make?
 A. Make four grades.
 Q. Name them, and give the percentage of each.
 A. "Gilt Edge", 50 per cent.
 Q. Patent? A. What is a patent?
 Q. Is this a patent flour?
 A. What do you call—what do you call a patent flour?

The Court: Now, it isn't for you to sit here and argue the case.

By Mr. Butler:

- Q. Is it a patent? A. It is a middling flour.
 Q. It is a patent? A. Patent is a misnomer.

Mr. Butler: I ask the Court to direct the witness to answer that or say he cannot.

The Court: You must answer the question, or say you cannot.

A. Well, there is no such a thing as a patent. The patent has application to the process of the reel system. All flour made by that system was originally—

1907 The Court: (Interrupting) Now, we are not asking you for lecture upon this. Now, please answer the question.

By Mr. Butler:

- Q. Go on and tell your percentages.
 A. Well, 50 per cent.
 Q. All of them? A. Sir?
 Q. You said you made four grades, and I want the per cent of each.
 A. You will get them. The first grade, "Gilt Edge", 60 per cent, the next thing is a 95 per cent, called "Sunflower."
 Q. Is that a straight? A. 95 per cent.
 Q. Is it a straight flour? A. No, sir.
 Q. Go on; what is your next grade?
 A. The next grade is "Golden Age", a 35 per cent clear.
 Q. What is a clear? A. What say?
 Q. What is a clear?
 A. A clear is flour that is specky, that hasn't all the impurities removed.

Q. Not all the flour content of the wheat? A. Sir?

Q. It is not the whole flour content of the wheat from which it is made, then—the clear? A. No, sir.

Q. What is the other part called, in the milling business? A. The top.

Q. Isn't it called a "patent", Mr. Lyle, by the trade?

A. By some millers it is.

Q. Isn't it generally known in the markets of the world, the market of Leavenworth, the market of Kansas City, that a clear is that portion of the flour that is made after the patent has been taken off? A. The clear?

Q. Yes.

A. No; that would not be a good definition of it. There is low grade, below the clear.

Q. Isn't a patent flour well known? Isn't the phrase "Patent flour" commonly used?

A. Commonly used, yes.

1908 Q. Did you ever see on a sack the words "Top Grade", in your life? A. Yes.

Q. What sack? What brand?

A. I do not know. Somebody makes a "Top Notch" brand.

Q. You think that means the same as patent?

A. I don't know what it means.

Q. You don't know what "Patent" means, do you?

A. Sir?

Q. You don't know what patent means, do you?

A. I know what it means—what it has been used to imply.

Q. What has it been used to imply?

A. The highest grade of flour that millers make.

Q. Do you make a patent?

A. We make a so-called patent, yes, sir.

Q. What did you mean, then, when you declined to answer, when I asked you whether you made a patent flour or not?

A. Well, we don't brand our flour "patent"; we simply use the mill brand on it.

Q. Did you ever brand it "patent"—any of your flour?

A. Yes, we brand it whatever they want it.

Q. Did you ever brand your flour "a patent flour".

A. Yes, sir.

Q. When?

A. Oh, within the last—up to within a year ago.

Q. When did you quit? A. About a year ago.

Q. Why did you quit?

A. Because we considered "patent" was a misnomer.

Q. Because you wanted to avoid the charge of misbranding, wasn't it. A. No, sir.

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

By Mr. Butler:

Q. Wasn't that since the order of the Secretary of Agriculture, denouncing bleaching by NO₂ gas?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial, and improper.

1909 The Court: He may answer when he did so.

Mr. Butler: I will withdraw the form of the question.

Q. You remember the time of the order of the Secretary of Agriculture, determining that bleaching by NO₂ gas was adulteration within the meaning of the pure food act, don't you?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial, and improper.

The Court: He may answer.

A. The order did not have anything to do with NO₂ gas.

By Mr. Butler:

Q. It had, with nitrogen peroxide, didn't it?

A. What did you say?

Q. It had nitrogen peroxide gas, didn't it?

A. I don't remember.

Q. Well, you remember the order I refer to?

A. Yes, sir.

Q. You quit labeling your flour "patent" after that order, didn't you? A. Yes, sir.

Q. And because of that order, didn't you?

A. No, not necessarily.

Q. No, but in fact. A. No.

Q. How do you fix your standard of color? Have you the same standard of color, for all four grades, or a different standard for each?

A. We have a type sample of each grade, that we keep, and maintain as a color standard.

Q. What is the standard for your higher grades—standard of color?

A. If I had a sample here I would show you.

Q. How did you make it? A. Out of wheat.

Q. When? A. I can't tell you now.

Q. How long have you used it? How many years?

A. Why, we try to maintain one color all times.

Q. How many years have you maintained the same standard of color for your highest grades?

A. Well, we have been making that grade for about 28 years. We have aimed to maintain that color all the time.

1910 Q. And you have something fixed to indicate the color, as a basis of comparison?

A. Yes. We have a standard sample.

Q. When did you fix up the standard now in use?

A. I could not tell you.

Q. Did you change the standard of color when you began to bleach? A. Yes.

Q. When did you begin to bleach?

A. About four years ago.

Q. By what process? A. The Alsop.

Q. Did you ever use another? A. No.

Q. Any other process? A. No.

Q. Did you ever have any other in your mill? A. No.

Q. So, you fixed all standards, a standard of color for each of your four grades, when you began to bleach, or about that time?

A. Yes. That is, with the exception of the low grade. We do not bleach that. We do not try to keep any color with that.

Q. Never bleached the low grades? A. Never.

Q. None of them? A. We bleach not the low grades.

Q. What is the per cent of your low grade?

A. Five per cent.

Q. That is a red dog, isn't it?

A. No, we do not term it a red dog.

Q. No matter what you term it, it is, in fact, what is known generally by many millers as "Red Dog", isn't it?

A. Oh, we sell it as low grade. We do not sell it as "Red Dog."

Q. So, when this bleaching process came in, you gentlemen got together and fixed up a standard of color for each of your three grades, and have maintained it ever since?

A. As near as possible.

Q. All seasons of the year? A. As near as possible.

Q. And one year with another? A. As near as possible.

Q. So, it does not make any difference what kind of wheat comes in, whether it is new wheat or old wheat, or what kind of wheat it is made out of, the Alsop bleacher matches it up with the standard, don't it?

1911 A. That is what we endeavor to do.

Q. And that is what you call natural aging?

A. What did you say?

Q. That is what you call natural aging? A. No.

Q. Isn't that natural aging?

A. Not with the Alsop bleacher, isn't natural aging.

Q. Did natural aging have anything to do with the colors that you fixed for each of these three kinds of flour?

A. All flour, after it has aged for several months, gets whiter than it is when it is freshly ground.

Mr. Butler: I move to strike that out.

The Court: It is stricken out.

By Mr. Butler:

Q. Answer the question.

A. State the question again, please.

(Last question read by the reporter.)

A. The standard of color?

Q. Does natural aging have anything to do with that?

A. No.

Q. You adopted a standard which you thought would make an attractive color for each particular grade of flour, didn't you?

A. We improved the color of the flour by the use of the bleacher.

Mr. Butler: I move to strike out the answer is not responsive.

The Court: It is not responsive. [And] the question, Mr. witness.

A. Read the question.

(Last question read by the reporter.)

A. Yes. We tried to improve the color with bleaching.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: Now, that is not an answer to the question. Why don't you answer the question, and let us get along. Read the question.

(Last question read.)

A. Yes.

1912 By Mr. Butler:

Q. That was an arbitrary color which you follow out, suitable to the particular grade of flour?

A. Well, we had to experiment, to find out what the bleacher would do.

Mr. Butler: I move to strike that out.

The Court: Oh, yes. Why don't you pay attention to the question? You don't fix your mind on what he is asking you.

A. State the question again, Mr. Reporter.

(Last question read by the reporter.)

A. Yes.

By Mr. Butler:

Q. In each case? A. Yes.

Q. And for four years, by means of bleaching, you have been bringing each grade of flour to that arbitrary standard, haven't you? A. We have attempted to.

Q. And have succeeded very well, haven't you, as a practical matter?

A. It is hard to get one crop to make the same color that the other does.

Mr. Butler: I move to strike out his answer as not responsive.

The Court: Ask the question over. I do wish, Mr. Witness, you would listen to what is being asked you.

(Last question read.)

Mr. Scarritt: We object to that as a mere argument, if your Honor please.

The Court: He may answer.

A. Yes, sir.

Q. Did you ever have an American bleacher in any mill that you were connected with?

A. We have the American bleacher now, as well as the Alsop machine.

Q. Did I misunderstand you, when I first asked you whether you had ever had any other bleaching system?

A. We consider them the same machine.

1913 Q. Oh, you consider the American the same as the Alsop? A. Yes.

Q. You have two, then? A. Yes.

Q. One the Alsop patent, and one the American patent?

A. Yes.

Q. Use both of them? A. Yes.

Q. Use both on each grade to get it to each arbitrary standard of color?

A. No; we just use them both when it is necessary.

Q. Use them indifferently, on each grade?

A. The miller has to be the judge of that.

Mr. Butler: I move to strike that out as not responsive.

The Court: That is not an answer.

(Last question read.)

A. I don't operate the bleachers, myself.

By Mr. Butler:

Q. You don't know? Is that it? A. What do you say?

Q. You don't know? A. No.

Q. You cannot answer my question, for lack of knowledge? Is that the reason you do not answer?

A. I do not know how the application of the gas of the two machines is applied to the mill, because I don't operate that.

Q. What kind of pipes are used to conduct the gas from the American? A. Galvanized iron.

Q. The same as from the other? A. Yes.

Q. Are you aware that both employ nitric acid, or NO₂ gas, which combines in the pipe, and forms nitric acid?

A. Never understood that.

Q. You never understood that? A. No.

Q. You don't know about that? Is that what you intend to imply?

A. I have never understood that either one of the machines generate nitric acid.

Q. Did you understand that it generates NO₂ gas?

A. I have been informed they did.

Q. You understand that, when it comes in contact with moisture, makes nitric acid?

A. No, I don't know that it does.

Q. You never understood that? You never studied chemistry? A. Only in a casual way.

Q. You know, don't you, that nitrogen peroxide, in water, makes nitric acid? Have you a slicker with you?

A. No, sir.

Q. Every miller carries a slicker, don't he?

A. I do, when I have a vest on.

Q. Did you ever look to see whether there was anything accumulating in your pipes, from the action of the acids in the pipes? A. No.

Q. How is that? A. No.

Q. Ever take any steps to keep it out of the flour? Did you ever see any substance like that (referring to exhibit) in your pipes, over there? A. No.

Q. Ever look for it? A. No.

Q. Ever know it accumulated there? A. No.

Q. Do you know that it does not?

A. No. I don't know anything about it.

Q. Do you know how often your miller cleans out your pipes, to get rid of that sort of stuff—the nitrite of iron?

A. No, sir.

Q. Do you know how often he cleans out the agitator, to get rid of the yellow, overbleached flour?

A. I never heard of it being cleaned out.

Q. You never gave any instructions to have it cleaned out?

A. No, sir.

Q. Were you in Court when Dr. John A. Wesner testified?

A. No, sir.

Q. Do you have a packing bin—a bin for the packing, or do you know about that? A. Yes, we have a small hopper.

Q. Did you ever smell the bleaching gas?

A. No, sir. That is, I have smelled it at the machine.

1915 Q. At what machine? American or Alsop?

A. Both.

Q. At both the American and the Alsop? Smell the same thing? A. Yes, sir.

Q. Nitrogen peroxide gas?

A. I don't know what the gas was.

Q. Did you ever observe the yellow, sulphur colored flour on the bins over the packer?

A. We do not have any bins over the packer. Just a small hopper.

Q. In the hoppers? A. No.

Q. Never looked for it? A. No.

Q. Do you know whether it accumulates there or not?

A. No.

Q. So, you don't know much about that mill, do you?

A. I think I do.

Q. Well, do you say that you don't know whether or not 500 minutes of exposure of flour, condensing on the walls of your agitator and other places, will turn it yellow, like sulphur? Do you say you don't know that?

A. No, I do not know.

Q. Did you ever observe it? A. No.

Q. Does this gas smell, throughout the mill? A. No.

Q. Does it smell where you pack it?

A. No, sir, I have never detected it there.

Q. Did you ever look for it there, where it came out of the agitator? A. No.

Q. Never looked for it there?

A. You say out of the agitator or packer?

Q. Where the flour comes out of the agitator.

A. Oh, no; it is boxed up tight.

Q. Well, where it comes out of it, into the sack, did you ever look for it there?

A. I have been around the packer, but I never detected it.

Q. Never detected any odor? A. No.

Q. So, you swear it is odorless, where the flour runs into the sack, after being passed through the bleaching agitator, do you? A. I would not say that, no.

Q. Why won't you say that.

1916 A. Because I don't know whether the flour has any odor, or hasn't.

Q. I mean, hasn't it the odor of this bleaching gas?

A. I don't know.

Q. In the sack, right after it comes out, and when it is freshly sacked? Do you know that, in opening the sack, there is the odor of that bleaching gas?

A. There may be.

Q. Don't you know that in the car, where the sacks are, everywhere, will be the odor of that bleaching gas?

A. No, sir.

Q. Do you know that it is not?

A. I have been in them, and I have never detected it.

Q. Have you become accustomed to the smell of this gas?

A. I think I can detect it when I come in contact with the odor strong enough.

Q. Now, did you ever hear the phrase "natural bleaching" until this lawsuit commenced? A. I guess so.

Q. Natural bleaching? A. Yes.

Q. Where?

A. In shipping flour abroad, flour gets—

Q. (Interrupting) Who used the phrase? No matter what happened to the flour, I am after the word now, "natural bleaching". Did you ever hear that before the Alsop process was invented? A. Yes, sir.

Q. As distinguished from what kind of bleaching?

A. I don't think that I ever knew anything about the bleaching until the Alsop process came up.

Q. Now, how much natural aging is your bleaching the equivalent of on your highest grade?

A. Oh, I should judge about three months.

[A]. And your next highest grade?

A. Probably the same?

Q. And your next highest grade?

A. Why, I should judge about the same.

Q. How did you get at that?

A. Well, flour—we keep samples of flour around the place, and you can notice, in old samples, after they become any place from one to four months old, you can notice a very great difference in the color.

1917 Q. Did you ever hear of any natural aging that would bring flour of three different grades to a standard for each, for four consecutive years, without regard to season of the year, or the condition of the crops? A. No.

Q. Then, when you bleach it to bring it to each of the three grades, to an arbitrary standard, you are artificially treating that flour, and changing it chemically, to an arbitrary standard, aren't you?

Mr. Scarritt: We object to that, as incompetent, irrelevant and immaterial, and an improper hypothetical question, not having anything to do with the issues in this case, and an argument of counsel to the witness, and invading the province of the jury.

The Court: He may answer.

Q. Well, now, there is—where the—I don't know how to answer that. There are two things in one, there. No.

By Mr. Butler:

Q. You say there are not?

A. I say there were two questions. I said no.

Q. You answered negatively, did you not? A. Yes.

Q. How can you answer that question negatively, when you say you fixed, four years ago, an arbitrary standard of color for each grade, without regard to crop conditions, whether the wheat was new or old, or the kind of wheat used, you took an Alsop bleacher and brought it to that standard of color. How can you say that you are not chemically bringing the condition of that flour to an arbitrary standard?

Mr. Scarritt: Same objection.

The Court: He may answer.

A. Because I do not think we are having any chemical effect on the flour, because it don't show up in tests of the baking.

1918 By Mr. Butler:

Q. Oh, you think there is no chemical change worked in the flour? A. A very imperceptible one.

Q. As to the color, then, are you not, by chemical action, bringing it to an arbitrary standard, whatever the changes are, whether it is in the gluten, or the starch, or the color, or wherever it is, haven't you set a mark, and by chemicals, brought your flour up to that mark?

A. No, not by chemicals.

Q. Well, by an Alsop bleacher, then?

A. Well, an Alsop—not by the Alsop, either. We dry the flour, and that whitens it.

Q. Oh, you dry it, do you? The Alsop dries it?

A. Yes, sir, sure.

Q. Are you aware the patent says it adds water to it?

A. No, I do not know that.

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

By Mr. Butler:

Q. Don't you know that?

A. I don't know anything about the wording of the patent.

Q. How much does it dry it?

A. It evaporates some moisture from it.

Q. Would hot air do the same?

A. To a certain extent, yes.

Q. Then, why don't you use hot air, instead of NO₂ gas to dry it with?

A. We probably will, if the Government shuts us off from using the Alsop.

Q. Why haven't you done that, and saved the cost of these machines?

A. We did not know it before.

Q. Didn't know that? You are a mill manager, and don't know that hot air would dry out one tenth of one per cent of the moisture content of flour? You don't know that?

A. Yes, but it would cost too much to dry it.

Q. So, you thought you would purify it by electricity? Is that it? Do you call this "purified air" up there?

1919 A. Do we call it what?

Q. "Purified air"? Do you call it that?

A. Why, no, that ain't the term.

Q. Electrified? A. No.

Q. Modified? A. No.

Q. Or do they call it NO₂ gas, up to your mill?

A. We just call it an Alsop bleacher.

Q. Does this bleaching increase the gluten and food value?

A. No, not that I know of.

Q. You are aware that the patent says it doubles the gluten, are you not?

A. No. I do not know anything about the wording of the patent.

Q. What is the fact about that? The patent does so state. That is in it. Now, is that true or not?

A. I don't know.

Q. You don't know about that? A. No.

Q. Now, you don't know anything about the effect of this bleaching process, except that it will bring the color of each flour to the arbitrary standard of each of the three grades that you have heretofore referred to?

A. That is what we do it for.

Q. And that is all you do it for? A. Yes, sir.

Q. Yes, sir. And this talking about natural aging, to its natural arbitrary standard, is a humbug, pure and simple, in your judgment, isn't it? A. No.

Mr. Scarritt: We object to that.

The Court: Sustained.

By Mr. Butler:

Q. Do you believe that there is any natural aging, for four years, to an arbitrary standard to each grade of flour, without regard to season, crop conditions, or the kind of wheat?

A. What do you call an "arbitrary standard"?

Q. The standard that you fix for each grade of your flour.

A. What does he say?

1920 (Last question read by the reporter.)

A. No, it won't. There isn't any natural aging for four years. Now, that is for four consecutive years.

By Mr. Butler:

Q. Now, is it not well known among the bleachers, that there is a process known as the "Alsop process", and another known as the "American process", and another known as the "Williams process"? A. Yes.

Q. And is not the American process, when spoken of commonly among millers, distinguished by the name "American"?

A. That is, the two machines are distinguished, but I guess it is pretty generally conceded that their work is practically the same.

Q. When I asked you if you did not use some other process, and you said you did not, did you not intend to conceal from me, and this jury, the fact that you used the American and the Alsop both? A. No.

Q. Then, why didn't you say, that you used the American, because that is as well known as the Alsop by name, among millers, isn't it, and is entirely different from the Alsop, isn't it?

A. Well, the companies were absorbed some time ago.

Q. When? A. I don't know how long.

Q. Which one did you get first? A. Sir?

Q. Which one did you get first?

A. We had the American first.

Q. When you got the American, it was not known as an Alsop, was it? A. No.

Q. But it was not known as the Alsop process when you got it? It was since then that Alsop claimed a monopoly on the gas used, and drove the American to sell out to it, wasn't it?

A. It was known as the Bradley-Lovejoy patent. I believe that is the patent they operated under.

Q. Now, then, why is it, when I asked you if you did not use some other process, that you denied it?

A. Well, I considered the two just the same.

Q. Considered the two just the same? A. Yes.
1921 Q. When you bought one from Bradley, or the American Company, and used it for some time?

A. American Milling & Purifying Company.

Q. And then the Alsop Company came in and sold you another?

A. No; we enlarged our mill, and bought another one, and we bought it from the Alsop Company.

Q. Who brought you here? Did you come here as a volunteer? A. No, sir.

Q. Are you contributing to the defense? A. Yes, sir.

Q. Why didn't you send your miller, who knows about the milling process, instead of coming yourself?

A. He is up in the German Hospital.

Q. He is sick? That is the only reason, is it not?

A. He would be here, if wanted, and could be.

Q. We would like to have him, and ask him whether or not he could smell the gas, or whether he cleans out his pipes, or not.

A. If you want to subpoena him, get Dr. Froehling to let him come down.

Witness excused.

(Court thereupon adjourned, to meet again at ten o'clock a. m., Monday, June 27th, 1910.)

1922

Morning Session.

Kansas City, Missouri, Monday, June 27, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

George L. Teller, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. Professor, please state your full name.

A. George L. Teller.

Q. And your profession? A. Chemist.

Q. Will you please state your qualifications and your residence—where do you live?

A. Riverside, Illinois. I have been a chemist for the past twenty-two years. I have been assistant to Dr. Kedzie who has made a special study of wheat at the Michigan Agricultural College for two years. I was chemist to the Arkansas agricultural experiment station for over nine years, where I made a special study of wheats and flours and all matters pertaining to them. I was two years or three years chemist of the Chidlow

Institute in Chicago, where my work was entirely with flours, and I have for the remainder of the time been connected with the Columbus Laboratory. Previous to this time I graduated from the Michigan Agricultural College with the degree of B. S., and later on granted the title of M. S. from the same institution.

Q. I will ask you, professor, have you been accustomed to making analyses of foods and grains of various kinds, including wheat and flour, and similar articles?

A. I have made a great number of such analyses.

Q. How long have you been engaged in such work?

A. For twenty years or twenty-two years.

Q. Has your work been specialized along any particular line, and if so, what?

1923 A. Perhaps more especially along wheats and flours, than along any other line.

Q. Does your work in connection with flours involve the examination and analysis of samples of flours of various kinds?

A. It does. We receive a great many samples of flour from all parts of the United States, China, Europe, and other places, including all classes of wheats that are grown in these different countries.

Q. Have you done any work with bleached flour, and if so, to what extent?

A. I have done a great deal of work with bleached flour from the receipt of the first sample of bleached flour in this country it is known from Ireland, I think it was, up to the present time, I have made a special study of that subject.

Q. Are you familiar with the Alsop process and with flour bleached by that process? A. I am.

Q. How many samples of bleached flour, roughly speaking, would you say you have examined? A. Several thousand.

Q. Have you made any tests on bleached to ascertain if any damage of any kind was done to it, and if, so state fully what you have done.

A. I have made very thorough tests on the samples. The first sample of bleached flour which I received was very carefully analyzed in comparison with the unbleached flours, and I have made repeated analyses of bleached and unbleached flours since to determine the bread making qualities and any changes that might be brought about in the commercial value of the flour, and also changes that might be brought about in the chemical value of the flour, chemical constituents of the flour.

Q. I will ask you if this work was done in the regular line of business in ascertaining the commercial value of flour?

A. A large part of it has been; other parts have been for the purpose of arriving at the truth of the problem concerning

bleaching, including the first sample which I examined which it was my purpose to set before the millers of the country that they might know more of the nature and the character of the bleaching process.

1924 Q. Have you been accustomed during the past five or six years to receive samples of bleached and unbleached flour from millers and bakers for the purpose of comparing their strength, purity, baking qualities, and other characteristics? A. I have.

Q. And have you, as a matter of fact, made careful, scientific comparisons of such samples?

A. I have made a great many such comparisons.

Q. Now, I will ask you, Professor Teller, as a result of all your work on commercial bleached flour have you found any of such flour to be injured in any way by the bleaching process?

A. I do not know of a single sample which I have examined, commercial bleached flour, that has been in any way injured or contained anything that injured the flour that could be attributed to the bleaching process.

Q. Yes, sir. Now, I want to ask you especially as to the gluten contained and as to the strength, quality and elasticity of the gluten in such samples of bleached flour as you have examined, compared with the same flour unbleached, have you ever noticed that these qualities of the gluten have been injured in any way?

A. I have never found any injury to the gluten in this way at all, change in the amount of gluten or in injury to its quality that could be detected either in bread making or other lines.

Q. I will ask you if you have ever noticed any foreign odor or unpleasant swell produced in flour by the commercial bleaching of it?

A. I have never noticed any odor that was retained by the flour after it left the mill. There is always a peculiar odor accompanying the bleaching of flour which is characteristic of the reaction apparently, that takes place in this bleaching process, but it is very fleeting, and possibly is accompanied with the property of a part of the products of the bleaching.

Q. Now, as to the starch, what would you say as to the starch content?

A. There is no alteration in the starch content of the flour.

Q. Now, as to any other constituent of flour?

A. There is no alteration in any other constituent of the flour excepting the coloring matter.

1925 Q. And that is changed and made lighter, I understand?

A. That is changed in such a way that the yellow color is no longer apparent.

Q. Now, have you made examinations of bread made from bleached and unbleached flours?

A. I have examined a great number of such samples.

Q. And I will ask you if you have noticed any difference in the odor from the bread made from the two?

A. I have never been able to detect any difference in the odor.

Q. Or of the taste? A. And the taste neither.

Q. Now, how about the color?

A. The color is always lighter for the bleached flour, with commercially bleached flour, than it is with the unbleached flour.

Q. And now as to the relative volume of the loaf volume?

A. Where there has been any difference noted it is in favor of the bleached flour, but differences are so slight that they can in nearly all instances, at least, be attributed to accidental variations in the making of the bread.

Q. Now, I want to ask you this question specifically, that is, if in your judgment, any damage of any kind is done to flour or to any constituent of it, or to the bread made therefrom by reason of bleaching such flour by this Alsop process?

A. In my opinion or in my judgment there is no injury done in that way.

Q. To what extent have you found nitrite re-acting nitrogen in bleached flour?

A. An average of about one part per million of color corresponding to the color which is obtained when the Griess re-agent is applied to a nitrite.

Q. Have you found such nitrite re-acting nitrogen in flour that is naturally aged or bleached? A. I have.

Q. How does the amount of nitrite re-acting nitrogen in naturally aged flour compare with that in commercial bleached flour?

A. I have found as high as four times the amount that is present in commercial bleached flour.

By Judge Scarritt:

Q. In what?

A. In the flour that is naturally bleached I have found as high as four times the amount that is present in commercially bleached flour.

1926 By Mr. Elliott:

Q. Is it possible, in your judgment, Professor, by a chemical test to determine if the flour has been naturally bleached or bleached by this Alsop process?

A. I have investigated this matter carefully, and I believe there is no means of determining whether it is bleached by artificial or by the Alsop process, or whether it is bleached by the natural aging in the air, without knowing the history of the sample.

Q. Is there any difference in the chemical re-action between—with Griess—when flour is changed by natural aging and this artificial bleaching?

A. I have never been able to detect any difference.

Q. Now, how have you arrived at this conclusion?

A. By a large number of experiments which have been carried on on bleached flours from mills, on flours which have been bleached at the same time by exposure to air, and by unbleached flour, the same flours unbleached.

Q. Now, you may tell us what you have found?

A. I have taken flour and exposed it to the air of my kitchen and found that it soon lost its color, as we know that flour is continually losing its color and I might say here that one of the greatest difficulties which we have in the laboratory in determining the color value of the flour is to keep the standard constant, that the color is always changing; if you open a can of it and expose it to the air a little while and then take the same flour, tomorrow it becomes lighter, you could not keep the flour constant. Now, I find this same thing to take place when I expose a sample of flour which was unbleached to the air of my kitchen, and then it lost the color; I applied the usual test of determining the amount of nitrites or the color giving material present in it, applying the flour to the Griess test to the extract from the flour, and have found that the color was apparent in this extract the same as it was in the flour which had been bleached by the Alsop process.

Q. To what extent, Professor, are you able to explain the change in flour that occurs by natural aging?

A. The chief change in flour, aside from the losing of the color, the changing of the color, that is to be attributed to the drying out of the flour, the loss of moisture, it increases the absorption of the flour so that you have to add more water to it if you wish to make it into a dough of the standard stiffness.

Q. To what extent does this nitrite re-acting substance remain in bread that has been bleached by this Alsop process?

A. To a very slight extent, generally, I think the largest amount that I have found in the sample that was bleached by artificial means had three to four-tenths parts per million, and the same flour baked at other times and by little different process, the amount was reduced to nothing.

By Judge Scarritt:

Q. You mean three-tenth of one part?

A. Three-tenths of one part per million. I may add that this was baked by a specially short process for the purpose of using data along those lines and that by bleaching by this—baking by this process, a larger amount of nitrites was left there than ordinary. I took the same flour home and had my wife bake bread from it in the kitchen as she ordinarily bakes bread, and there was no nitrites left in it.

Q. Now, to what extent, if any, have you observed nitrite reacting material to remain in bread made from unbleached flour?

A. There is nearly always, or often, I won't say nearly always, but often a trace of pink produced by applying the Griess[yet to the extreme] from bread made from the unbleached flour.

Q. Now, have you made any examination of the dough of bread before it goes into the oven to ascertain the presence or absence of nitrite material in it?

A. I think I have made examinations of that kind. I have examined the dough that was not to be baked afterwards frequently, and I found that the nitrites were removed through the process of fermentation.

Q. In your judgment do bacteria of the yeast plant feed on this nitrite re-acting material?

A. They do; they can remove from flour in which they are allowed to act upon it. I have made experiments in which I have set yeast and flour which had been bleached in a 1928 soft dough and allowed them to stand together for a time, and the nitrite coloring material was removed, when the same flour and the same yeast were put together in the presence of chloroform which would stop the action and growth of the bacteria in the yeast which were present, the color was turned in the same amount that it was on the unbleached flour, and the same amount that was on the untreated flour dough, that is, flour dough that had no yeast in it.

Q. I will ask you to tell us to what extent, if any, the flavor of bread depends upon the baking and manipulation of the dough and the mixtures put into it, and so forth?

A. My experience in the flavor of the bread is dependent much more upon the method of making it than upon the flour which it put into it; it is possible to alter materially the flavor of bread from any flour by making it by different methods of bread making.

Q. Suppose, for instance, suppose that you had made a loaf of bread from a given flour and some expert baker or other baker here in Kansas City had made a loaf of bread from that same flour, in your judgment these two loaves made from the same flour might differ materially in taste, and so forth; is that correct?

A. They most certainly would; it is the experience of bakers in general that the same flour baked by different bakers will give different flavors.

Mr. Butler: I think I will move to strike out the experience of bakers generally as not responsive and irrelevant.

The Court: Yes, that will be stricken out.

Judge Scarritt: If he knows it as a fact he can state it.

The Court: That would be hearsay, I would think.

By Mr. Elliott:

Q. Well, I will ask you if that is your own experience?

A. That is my own experience on examination of a considerable number of loaves of bread.

Q. I will ask you, Professor, if you have made any experiments to determine whether bleached flour has in any way been affected in digestive value, and if so with what results?

A. I have made a considerable number of experiments to determine whether or not flours which had been bleached were any less digestible than those which were unbleached, the same flour which is unbleached, and in some cases I have found that the bleached flours were more readily digested, the protein of the bleached flour, both by pancreatic or pepsin. These experiments were made by making bread from the flours which were bleached and which were unbleached.

Q. The same flour?

A. The same flour, and exposing them to the digestive juices at the same temperature and the same amount of digestive juice, watching the process of digestion, making determinations of that digestive proteid, after the process was completed, and determining the amount of digestion from the actual amount of proteid nitrogen recovered or proteid recovered in the solution after digestion.

Q. Now, what do you state is your opinion as the result of those experiments?

A. My opinion is that commercial bleached flour is not materially altered in the digestibility by the process of digestion.

Q. Did you make what has been spoken of here as these nitrogen determinations?

A. Yes, sir, always make those determinations of products of digestion.

Q. What is the difference, Professor, between a hard and a soft winter wheat?

A. The Century dictionary or Webster's New International dictionary defines the soft wheat—

Mr. Butler: I object to the dictionary. We can go to that ourselves without taking up the time of an expert.

The Court: Objection sustained.

A. My experience is the same with the soft winter wheat flour, a one which is relatively rich in starch, I was just going to say that the Century Dictionary outlines that and that I agree with it.

By Mr. Butler:

Q. You are sure the dictionary is right then?

A. I am sure the dictionary is right.

Mr. Butler: So am I in both cases.

The Court: That is a great compliment to the dictionary.

Witness: I find it a very good book.

1930 By Mr. Elliott:

Q. Have you made any comparison, Professor Teller, of the starch content of this flour that has been seized, to ascertain how it compares with the starch content of the standard soft winter wheat flour?

A. It contains a considerable less starch than the soft winter wheat flour, as soft winter wheat flours are recognized in the trade and by myself and by the dictionary. I might add that it contains practically reduced the same moisture content, the same amount of flour, the same amount of starch that a sample of Minneapolis spring wheat flour contained, examined at the same time, there is no difference between the two.

Q. You mean this seized flour? A. This seized flour.

Q. Contained?

A. Contained the same amount of starch when reduced to the same moisture point, which is essential in all cases as a sample from Minneapolis of standard spring wheat flour which is always recognized as a hard wheat flour.

Q. Given a grade of flour containing a certain per cent of impurities in the form of bran, of fiber, I will ask you, in your judgment, and the result of your investigation of flours, which flour will the more readily conceal the presence of those impurities, a flour having a yellowish color, or a flour which has been made whiter by means of this process?

A. I am examining flours daily for color, and have noted, among other things, that it is much more easy to note the presence of the outer portion of the wheat berry in flours which are bleached than in the same flours which are not bleached because the yellow coloring matter assists in covering up these impurities just the same as bleaching assists in covering up the yellow of linen.

Q. I will ask you if you have made any comparisons between bleached and unbleached flours as to the relative acidity? A. I have.

Q. If so with what result?

A. Examined a great many samples of bleached flour for their relative acidity, the flour unbleached and the commercial bleached, and have never been able to detect any increase in acidity.

1931 Q. In the process of bleaching with this Alsop process I will ask you if either nitrous or nitric acids, in your judgment, are added to the flour? A. They are not.

Q. Have you examined the flour that has been seized in this case? A. I have.

Q. Would your answer apply to that flour? A. It would.

Q. If in your judgment, there is neither nitrous nor nitric acid added to the flour, what would be your opinion as to the presence in flour bleached by this Alsop process of nitrites as such or nitrates as such?

A. I think there are none there; there are none there.

Cross-Examination

By Mr. Butler:

Q. Are there any nitrates as such in naturally aged flour?

A. I think there are none.

Q. Are there any nitrites as such in naturally aged flour?

A. It is possible that there may be.

Q. The natural aging adds nitrates to flour?

A. It might possibly come from the air or the nitrites in the air which might possibly come to the flour.

Q. You are a partner of Dr. John A. Wesener?

A. I am associated with him, yes, sir.

Q. You have collaborated with him in experimentation?

A. Much.

Q. He told us the other day that you had pumped out—he authorized it “we”—three thousand stomachs, did you participate in that?

A. Not in that branch of the work, no, sir.

Judge Scarritt: We object to that; the comments on other witnesses' testimony and basing his questions on those comments is highly improper.

The Court: He may answer; he said he had not.

A. Not in that branch of the work.

Q. You had nothing to do with the stomach pumping operations of the Columbus laboratory?

A. I am not connected with that part of the institution.

1932 Q. You prepared the speeches and papers, and other discourses, which he has given, before millers, published in trade journals and before bakers and bakers' associations?

A. I have sometimes collaborated in the preparation of those, yes, sir.

Q. You are familiar with those that he has made as they have been published in the scientific journals, the trade journals, the Bakers' Helper, the Modern Miller, the Northwestern Miller, the American Miller, and the Dixie Miller, you are familiar with all that stuff? A. I am quite familiar.

Q. Agree with it, do you?

A. I think so; I do not recall anything that I disagree with.

Q. Are you the founder of most of them?

A. I don't think that I am.

Q. You are really the doer in that laboratory, the man that does the work? A. I do some work there, yes.

Q. Well, I know, but, now, Professor Teller, we had a visit with Dr. Wesener here the other day?

A. Yes, sir, he told me.

Q. Now, is it overstating it to say that you are the doer, the man who really does the work?

A. I do a great deal of work there, I admit that.

Q. His public matters and the commercial features, and so forth, and his inventions and all that, occupy a large amount of his time and leaves the great bulk of the work for you?

A. A certain part of the work falls to me.

Q. Yes. Now, attention was drawn to when you were studying, your special training, are you a pharmacologist?

A. No, sir.

Q. Physiological chemist?

A. Not specialized in that direction.

Q. Organic chemist?

A. I have made some studies in organic chemistry. I couldn't say that I am an expert along the scientific or the deeper part.

Q. Are you an expert organic chemist?

A. Do a good deal of analytical work in organic chemistry. I am modest, I do not like to say that I am a great man.

1933 Q. I know, we would not hear your enemies say you were not, Professor. I am trying to get at this, not for the purpose of ascertaining about you, but to guide me in my further inquiries. You are an analyst? A. Yes, sir.

Q. But you do not claim to be, as I understand it, a specialist in organic chemistry? A. Some branches of it, yes.

Q. In some branches of it. You are not a toxicologist?

A. No, sir, make no claim in that direction, although I may have some ideas along those lines.

Q. The first bleached flour that you received was from Ireland?

A. I think it was, I am not sure now, but I think that was the origin of it.

Q. That is the Kjeldahl process, was it?

A. I think it was.

Q. It employed NO₂ artificially made, did it not?

A. I think there was NO₂ in the gas that we submitted to the flour.

Q. I guess I will have to ask you to answer my question just as I put it.

A. Well, then, I couldn't say that, I am not in a position to say that NO₂ was an active agent.

Q. I didn't ask you that? A. Beg pardon?

Q. I asked you if it employed NO₂?

A. I would interpret the question as the same meaning.

Q. Oh, you would?

A. Yes, sir, that is, if you mean NO₂ was the agent which did the work.

Q. I did not mean that, I ask if it was employed in any of the steps of the process? A. NO₂ is present there.

Q. Was present in the flour that you received from Ireland? A. I beg pardon, I didn't say in the flour.

Q. I am speaking of the sample you received from Ireland?

A. I didn't say it was present in the flour.

Q. Well, where was it present, then?

A. Probably in the machine that generated the gases.

Q. Yes, I see. Now, we get some things—have you been here before? A. Where?

Q. In this court at the trial? A. No, sir, not before.

1934 Q. Now, there are some things, Professor, we have understood here, I think. A. Yes.

Q. Let's see if you and I can agree upon it. Now, in the first place, it is stated in this patent that nitrogen peroxide gas is used to bleach flour by the Alsop process, is that true?

A. Why, as I remember the patent, it does.

Q. Well, does the patent tell the truth?

A. I am very doubtful about it.

Q. You think it is false?

A. I think there is a mistake there somewhere.

Q. You think there is a mistake there, but you do feel pretty certain that a flaming arc may be used to produce NO₂ gas?

A. I am pretty sure that there is NO₂ maybe produced from the flaming arc.

Q. All right. Did you ever make any determination of NO₂ gas in atmosphere?

A. I don't know that I have of NO₂ gas in atmosphere.

Q. No, never tried that?

A. I don't know that I have ever tried to determine NO₂ gas from atmosphere.

Q. Now, let us assume that the gas taken out of an Alsop bleacher on analysis shows 1100 parts to the million.

A. Of what?

Q. NO₂, to the million of the mixture?

A. It would be the wrong assumption.

Q. It would? A. It would.

Mr. Butler: Well, of course, I move to strike that out as irrelevant and impertinent.

A. I beg pardon, I did not mean to be impertinent, but I mean not in quantity, I was not hinging on quantity, but something else.

Q. Now, I ask you to assume that to be the fact. Now, scientists when they come to court may be questioned by asking them to assume certain facts that the jury may believe to be true. A. All right.

Q. Now, then, I ask you to assume that there is 1100 parts NO₂ gas per million in the bleaching medium employed by the Alsop process—nailing that down as the truth.

Judge Scarritt: We object to that because there is no evidence—

The Court: Oh, but hold on, they have a right to assume, 1935 you are not responsible for the assumption, then see what follows.

Judge Scarritt: We object to that; they have not a right to assume something that is not true, that the evidence don't support.

Mr. Butler: Oh, yes, it is proved; we brought it into this house and proved it.

The Court: Well, go on.

To which ruling of the court claimant then and there duly excepted.

Q. As true, now, assume that to be true.

A. I will answer your question with the understanding that I do not acknowledge that assumption.

Q. Oh, that you deny the truth of my assumption, you can deny that with all the force you like. A. All right.

Q. Now, is it in testimony that the Berkeland-Eyde process by which hundreds of thousands of tons of nitric acid are manufactured every year produces NO₂ by a flaming arc and passes atmosphere over it, and that the mixture has only 15,000 to the million against 1100 to the million in the Alsop process;

then as a professional gentleman I want to ask you whether or not the flaming arc may be used to manufacture nitric acid?

A. It is used as you state.

Q. It is the cheapest and best nitric acid factory known to science, isn't it?

A. It is supposed to be a very good one.

Q. And in principle, mechanically arranged, there are scientifically comparable, the Alsop process and the Berkeland-Eyde process, in principle.

Counsel for claimant objected to the question.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. The application of the acid brings the market.

Q. One is making nitric acid for sale, and the other is bleaching flour?

A. I don't admit that the nitric acid is bleached in the flour at all.

Q. I know you don't. Are you interested in Brother 1936 John A. Wesener's NOCl patent? A. No, sir.

Q. You know about that, don't you?

A. Well, I have heard of it, yes, sir.

Q. Well, you know about it, don't you?

A. I know pretty well of it, yes.

Q. You helped him invent it, didn't you?

A. I can't say that I did.

Q. You experimented along that line?

A. Yes, sir, I have been working along that line, sir.

Q. And NOCl plus H₂O gives hydrochlorid acid and nitrous acid? A. Under certain conditions, yes, sir.

Q. Is NO₂ a gas? A. It is.

Q. Is it a poisonous gas? A. I am not a toxicologist.

Q. Is it offensive in smell?

A. If you get enough of it it would not be good to smell.

Q. Offensive?

A. It is if you get enough of it, it would be objectionable.

Q. Yes. A. Lots of other things too.

Mr. Butler: I move to strike out the "lots of other things."

The Court: Yes, that is stricken out.

Q. Is HNO₂ poisonous?

A. I am not a toxicologist, I would not be able to answer.

Q. Do you know as a chemist?

A. I heard that it was poisonous, read that it was poisonous; I am not a toxicologist.

Q. It is laid down in the primary books as a poison, isn't it?

A. The books state that it is a poison.

Q. You believe them just as much as you do the dictionary?

A. It is a copy.

Q. I mean a poisonous substance?

A. If you get enough of it, anything is poisonous if you get enough of it.

Q. Is flour poisonous?

A. Yes, if you get enough of it.

Q. A carload is very poisonous?

A. If a man would eat a carload at one time it would kill him.

1937 Mr. Butler: I move to strike that out.

Q. Now, I want to ask you if a carload of wholesome wheat flour is a poisonous substance?

A. If eaten in sufficient quantities.

Mr. Butler: I move to strike that out.

The Court: That is stricken out.

Q. The character of the substance, is it a poisonous substance, a carload of flour?

Judge Scarritt: We object to that as absolutely immaterial in this case.

The Court: The objection is overruled and he may answer.

To which ruling of the court claimant then and there duly excepted.

A. I can only answer that if given in sufficient quantities it would be poisonous.

Mr. Butler: I move to strike out his answer as not responsive.

The Court: Yes.

Q. And ask you whether as a scientific gentleman you can inform this court and jury as an expert, whether a carload of unbleached wholesome flour is a poisonous substance?

A. I cannot answer that question, not without qualification.

Q. You cannot answer it; we will try to get somebody who can. Do you know HNO₃? A. Heard of it.

Q. Is a quart of concentrated HNO₃ a poisonous substance—a quart? A. Taken by itself.

Q. What is that? A. If taken by itself.

Q. What do you mean "If taken by itself"?

A. Not diluted.

Q. Well, I mean concentrated?

A. Concentrated it is, certainly.

Q. Then HNO_2 is a poisonous substance?

A. Concentrated.

Q. Now, if a carload of flour was concentrated, that is, fill the car full, nothing but flour, that is not bleached, is it a poisonous substance? A. That is not a relative comparison.

Mr. Butler: I move to strike out his answer.

The Court: Yes. Answer whether it is poisonous or not.

A. I can't.

1938 Q. Can't tell whether it is poisonous. Is a carload of corn poisonous?

A. I know it is not poisonous, but I cannot answer that it is not poisonous under any conditions.

Q. Is a carload of corn a poisonous substance?

A. Taken in quantity it would be.

Q. Yes, all right. How is this NOCl shipped out, in what commercial volume does Professor John A. Wesener ship that out to millers to bleach flour?

A. I never kept track of that.

Q. Have you seen the carboys there like the compressed soda water drum? A. I have seen some cylinders, yes.

Judge Scarritt: We object to that as clearly outside of the issues in this case. About nine-tenths of the testimony that has been introduced here is on other things that have no more to do with this flour in question than the man in the moon.

The Court: Objection overruled.

To which ruling of the court claimant then and there duly excepted.

Q. Now, is a whole drum full of nitrosyl chloride a poisonous substance? A. In concentration it is poisonous.

Q. As shipped out is it a poisonous substance?

Same objection by claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. In concentration it is poisonous.

Q. It is shipped out in concentration? A. It is.

Q. Then Mr. John A. Wesener ships out poison in concentration in drums to bleach flour with, doesn't he?

A. I don't know whether he does or not; I have not seen him send out any.

Q. You know, don't you, Professor Teller, are you telling this jury that you don't know that he is engaged in that business?

A. Yes, I know he is engaged in the business.

Q. Then you know he is shipping it out?

1939 A. I expect he probably is connected with a concern that is.

Q. And you know every drumful of it is a poisonous substance? A. If taken in quantity.

Q. Well, it is in quantity in a practically concentrated form, and it is poison, isn't it? A. Have it your own way.

Mr. Butler: I move to strike that out.

The Court: That is stricken out.

Q. We will have it the way you say, you can say it is not a poison if you believe that to be the truth, or that it is, if you believe that to be the truth, and if you don't know, say you don't know, I don't care which end of that stick you take.

A. I believe nitrosyl chloride to be poison.

Q. Nitric acid is? A. Sure.

Q. It is commonly known as a poison, isn't it?

A. I expect it is.

Q. You know it is, don't you? A. Sure.

Q. And you know if you go and buy nitric acid at a drug store it will be labeled as a poison? A. Sure.

Q. And you know it is a poison and known to be such?

A. Sure.

Q. You know that, don't you? A. Yes, sir.

Q. Now, then, what is the volume of the coloring matter of Missouri wheat flour compared with the whole volume of the flour, wheat against wheat, or volume against volume, whichever way you prefer to state it?

A. Oh, it must be very small, I couldn't say it was more than one-thousandth of one per cent, I can't tell now, I haven't it in mind.

Q. Give it approximately?

A. Possibly one-thousandth of one per cent.

Q. That is one per cent?

A. One-thousandth of one per cent.

Q. That is one-thousandth, isn't it, of one per cent?

A. Multiplied together it will make one-thousandth of one per cent.

Q. That would make two ciphers up here like that, so then there is one part to one hundred thousand, one part of color to one hundred thousand flour?

1940 A. That would be somewhere near it.

Q. So we will mark down here, so we won't forget it, color one to one hundred thousand; now, that is the truth, isn't it, as near as you can get at it from memory?

A. I think that is about it; it might be overstated.

Q. Will NO_2 combine with water?

A. Well, it will enter into a solution of water, makes an acid.

Q. Will it make two acids? A. Make two acids.

Q. Nitrous acid, so then, if we say NO_2 plus H_2O , we will have HNO_2 and HNO_3 in equal chemical quantities, will we not?

A. That may be true.

Q. That is true, isn't it?

A. Yes, sir, if there is no other interfering material there.

Q. I don't mean to put in some cheese, or something like that, to make an organic nitrite or nitrate with it.

A. But I wanted to refer to oxygen which is most always present and changes very quickly.

Q. Now, these things are very rapid?

A. Sure they are.

Q. Very rapid, now? A. Yes, sir.

Q. If HNO_2 comes into contact with potassium will it form a nitrite of potassium? A. Yes.

Q. Of sodium, a nitrite of sodium? A. Yes.

Q. And calcium, a nitrate of calcium? A. Yes.

Q. Of magnesium, a nitrate of magnesium? A. Yes.

Q. And if it comes into contact with organic bases will it make organic nitrites? A. It depends on the base, yes.

Q. Usually, that is, generally the truth, isn't it?

A. Often is.

Q. And as a rule?

A. Not always because there are exceptions to it.

Q. I know, but is the general rule, subject to some exceptions, may we put it that way?

A. I won't say to how many exceptions, or how many there are, as a rule, but then it does both ways.

Q. Will nitric acid if it comes into contact with sodium, potassium, calcium or magnesium make a nitrate of each?

A. Nitrous acid?

1941 Q. Nitric acid.

A. Nitric will make the nitrate, and nitrous will make the nitrite.

Q. And if nitric acid came into contact with organic bases will it make organic nitrates?

A. Yes, if you have it there as nitrous acid or nitric acid.

Q. If you have it there as nitric acid?

A. But may I add, it would be sure to be there as such.

Q. Yes, and if it is there as such, it is a poisonous substance, isn't it?

A. Well, now, that is a peculiar question for a lawyer to ask.

Q. It is a very funny question, it is almost a hypothetical question, but it is so, isn't it, if it is there as such?

A. Will you allow me to give the comparison—

Q. No, I ask you to answer my question.

A. Well, now, I could not answer it because everything in this world is relative.

Q. Everything in this world is relative, and is it because everything in the world is relative that you couldn't tell us whether a carload of wholesome flour is a poisonous substance?

A. Certainly, it is, because if you take it in the right quantity it will be poison.

Q. Can you mention any substance on the face of the earth that is not a poisonous substance if a carload of clean, wholesome flour is a poisonous substance?

A. I don't believe I can mention any substance that would not be poison under certain conditions.

Q. So then our life depends upon poison, we eat it, we drink it, we breathe it, we live amidst poisons? A. Sure.

Q. And that being true you must say, it seems to me, that the bleaching medium made by the Alsop process is a poisonous substance? A. When concentrated it is.

Q. If everything else in the world is poisonous Mr. Alsop has not invented something that is not, has he?

A. I don't believe anyone can.

Q. You agree that strychnine is poisonous?

A. I think it is.

Q. And if we put some in flour do you think we would be adding poison to the flour?

A. I think we would if you put enough of it there.

1942 Q. If we put nitric acid do you think that would be adding poison to the flour?

A. If you put nitric acid there you might add a little poisonous material to flour.

Q. And if we put in NO₂ do you think we would be adding poison to the flour?

A. You may have a little poisonous material there; if you put salt in you do the same thing.

[A.] And sugar would be the same? A. Sure.

Q. So then you argue, do you, that because flour is poison-out to begin with, that the adding of some more poisonous substance to it it is not injured, that is your line of argument?

A. I do not argue that way at all.

Q. You say it is not injured by adding poisonous substances to it?

A. Sure it is not, I assume that it is eaten with common sense and judgment.

Q. All right. Now, then, do you hold, Professor Teller,—do you have anything to do with the health of people in your profession? [Q.] I have got a family.

Q. Well, I mean aside from the ordinary—yourself and those whom you love and who love you.

A. I don't think I am in any way connected with the medical part of the work.

Q. Do you know whether there are nitrates in the city water of Chicago?

A. Why, I think sometimes there are numbers of them, not always.

Q. Don't you know that every day it has been the custom for years of the chemical department of that city government to examine the water of that city for nitrates, and don't you know that they habitually and usually find nitrates?

A. I think they usually find some nitrates there, yes, sir.

Q. Did you make a loaf of bread that Professor—that Dr. John A. Wesener brought here?

A. I was connected with the making of it.

Q. Did you put some nitrates in? A. I think so.

Q. To show that yeast would reduce them to nitrates?

A. Yes, sir.

1943 Q. Do you know how much nitrates were put in?

A. I do not recall just now; I think it was—I would have to calculate it; I have had so many of these nitrate determinations my head is full of them.

Q. So is mine. A. We are on even terms, then.

Q. Yes, except I know about them and you don't; I probably would not if I was at it as long as you have been. You couldn't tell us how much you put in the bread?

A. No, I couldn't say just now, off-hand, just what my notes show, I could look it up.

Q. Where do you suppose that this unbleached flour that naturally ages gets four times as much nitrites as the bleached flour?

[Q.] The air is full of them, that is, the air contains it.

Q. But is the bleached flour in the air too? A. Sure.

Q. Does the bleaching render it immune?

A. It does not, not unless you have—

Q. Now, isn't that the most extraordinary phenomenon that you have ever witnessed in all your scientific researches, that unbleached flour will take four times as much nitrites from the air as the Alsop bleacher and the air together will put into bleached flour?

A. I thought that that was a remarkable discovery when I found that there is so much nitrites in flour that they would take it up in quantity.

Q. Now, discoveries may become so remarkable to scientists as to shock them, may they not, and make them doubt the truth?

A. Yes, and then we repeated it and found the same thing, and then we know we are right.

Q. Do you say that you found four times as much nitrites in unbleached flour as you did in the bleached flour?

A. Oh, you are laying too much stress on the nitrite, you didn't mean I should answer it that way, did you?

Q. Yes.

A. I tried to qualify it when I made the statement, that it was material which gave the same color re-action with the Griess re-agent as nitrites do.

Q. Then you didn't find any nitrites in the unbleached flour?

A. I would not be sure that there were nitrites there.

1944 Q. Will you swear that there were not any either the bleached or unbleached?

A. According to the best of my knowledge they are not nitrites.

Q. Yes, but you don't swear that they are not?

A. I am speaking under oath.

Q. Now, when Mr. Elliott asked you if you found nitrites, and we call nitrite re-acting material nitrites here, because—

A. Yes.

Q. Because it is shorter. A. Yes, that is so.

Q. And it is generally so called, is it not?

A. I think, that is it has been called that way for a considerable time.

Q. The world over?

A. Maybe, but it is often called that way.

Q. The world over, and so that when you swore there were no nitrites in bleached flour—

A. I put a qualification there.

Q. You meant to admit that there was nitrite re-acting material

[Q.] I meant to admit that there was material there which gave that pink color which disturbed so many people.

Q. That is nitrite re-acting material, isn't it?

A. That is material which gives the pink color with the Griess test.

Q. Is that called nitrite re-acting material in your publication? A. It has been referred to frequently in that way.

Q. In your publication? A. In my publication.

Q. Now, then, that nitrite material, that very thing, has been known by chemists for a long time, has it not? A. Yes.

Q. That re-action? A. Certainly it has.

Q. And that re-action has been spoken of by chemists this broad world over as the nitrite re-action and as establishing the existence of nitrites?

A. Yes, it has been spoken of that way.

Q. And yet when you come here this morning to testify before laity unskilled in chemistry, court and jury and counsel, you did make your solemn oath that there wasn't any nitrite in bleached flour?

A. I may have discovered that there are other materials besides nitrites which will give the same test.

Mr. Butler: I move to strike that out.

The Court: That is stricken out. He may answer the question.

1945 A. I say that I may have discovered that there are other materials that will give the same test.

Mr. Butler: I move to strike that out.

The Court: Yes, sir.

To which ruling of the court claimant then and there duly excepted.

Q. I want you to tell the jury and explain it in your own way and fully, why it is when these substances are known the would over in your profession as nitrites, that you did swear to this jury there were no nitrites in that flour?

A. All right.

Q. Now, tell that jury.

A. Gentlemen of the jury, I am aware that this test has been attributed to the presence of nitrites and nitrite material for a great many years; I have also made some experiments in my laboratory which I have made very carefully and repeated time and again, that indicate to me that there are other substances than the nitrites which when they are applied to this test in some way will become—they are changed in such a manner that they will eventually yield to pink color which is given by the Griess re-agent, that they are not originally nitrites and that they are therefore not in the flour as nitrites, but that they give the pink color with the Griess re-agent.

Q. Now, when Mr. Elliott asked you if you found such material or substance in unbleached flour, you said this: "I have found as high"—I am giving you the substance of it—"as four times as much in the naturally aged as in the bleached". Did you want this jury and this court to understand that that is the general rule?

A. I did not state it was the general rule; I said I had found it there, it was possible to get it there.

Q. You did not interrupt Mr. Elliott to qualify and say that that was the exception, did you?

A. I have not interrupted you to say that anything was exceptional very much.

Q. No, did you want the jury from your phrase, the form of the question and the form of your answer, to believe that that was the general rule? A. No, sir.

1946 Q. It is not, is it? A. No, sir.

Q. It is the great exception, isn't it?

A. It is the exception under certain conditions.

Q. Where the flour was spread out in contaminated air in your kitchen?

A. Where the flour was spread out ultimately, I have done it in various parts of the house.

Q. You are talking of bleached flour or unbleached?

A. No, sir.

Q. Didn't you use bleached flour?

A. We didn't have any at this time.

Q. Don't you use it yourself?

A. We do when it comes our way, but my wife buys the flour, and if it happens to be bleached all right, if it is not, all right.

Q. You were there at the time this New England dinner was cooked that is by Dr. John A.?

A. I say that made a beautiful illustration.

Q. He said he over-concentrated it, were you there when he concentrated it too much?

A. He simply put the meat in and boiled it down.

Q. I move to strike that out. He said he over-concentrated it; were you there when the over-concentration took place?

A. I think I was; I was there when the whole process was done.

Q. So that these nitrites are volatile, aren't they?

A. Well, now, what nitrites?

Q. Why, the nitrites that are in New England dinners?

A. He didn't drive them off.

Q. Well, I say they are volatile, are they not?

A. I would be at a loss to say, they were there.

Q. But the nitrites in flour are volatile?

A. But they are different compounds.

Q. Oh, so all this talk about nitrites in New England dinner is talk about a different kind of nitrites from those we find in flour, is it?

A. Well, I rather think that you might put it in that way, if you wanted to.

Q. Is that the truth, I don't want to put it that way unless it is true?

1947 A. That in the New England dinner is the more poisonous if you want to call it poisonous.

Q. I thought you were not a toxicologist?

A. Well, I am not.

Q. Well, now, why is it that you volunteer to say that the nitrites in the New England dinner were more poisonous if you couldn't tell whether a carload of flour was poisonous or not?

A. I have been reading up the dictionary and some related books that are almost exact, I am not a toxocologist.

Q. Are you willing to testify they are possible?

A. What is possible?

Q. As to the degree of toxicity of various kinds of nitrites?

A. I think I better not try to prove that up very strong.

Q. I think you better not either, if you expect to get away with it. Now, Mr. Elliott asked you this question, whether any sample of commercially bleached flour was injured that ever came under your notice, and you said no, am I right?

A. I do not recall any at the present time.

Q. You have examined over fifteen thousand of them at two and a half dollars per sample, have you not?

A. I don't know, we have examined a good many, we did not get two dollars and a half, we were working for the good of our country, and we hoped to set them right on this matter.

Q. So then in your patriotic enthusiasm you waived your fees? A. We often do that.

Q. Now, then, does it follow from your answer that if a flour has been injured by the bleaching process that it is then not a commercial bleached flour?

A. It would not be commercial product if it were seriously injured.

Q. That is it, so that your scientific training enables you to answer this way that no commercial bleached flour was injured, because if injured it was not a commercial article and not a commercial bleached flour?

A. I think we misunderstand each other; I mean that any flour that had been bleached that would be for commercial purposes, I don't mean to try to run the distinction over, I mean in the usual process of commercial bleaching, as 1848 far as I know.

Q. Now, let me ask you the question, is any flour which has been injured by the Alsop bleaching process a commercially bleached flour?

A. I don't know that I have seen—yes, I have, I over bleached one myself by putting it through the machine, I don't know how many times thirty or forty.

Q. Was it a commercial bleached flour?

A. No, it was not.

Q. So then if it is injured it is not a commercial bleached flour?

A. No, it would not be a commercial product any more.

Q. So that you can therefore conscientiously swear that no commercial bleached flour is injured, isn't that the way we get at that now?

[Q] That is not the way I interpreted it.

Q. That was not the way you interpreted it? A. No, sir.

Q. It is not the way you worked it out?

A. No, any flour that is bleached so it would be commercial flour.

Q. You say you can smell this flour at the mill, smell the result of bleaching, the products of bleaching, you put it?

A. Yes, sir, you can detect the smell there.

Q. Well, it is at the mill?

A. Well, it is in the process of bleaching, it goes through the air, a kind of a volatile material.

Q. You can smell it in the cars where it is being rushed fresh from the bleacher?

A. I don't know that I have ever examined in particular.

Q. You can smell it in the room where it is being packed also too?

A. I couldn't say as to that, it might be in some instances you could.

Q. What is that?

A. It might be in some cases you could.

Q. Yes, the gas used gives off an offensive odor?

A. But this odor is different.

Q. The NO₂ has an offensive odor?

A. Yes, but this is a different product.

Q. Nitrous acid—by the way, is there some moisture in flour?

A. I think so, usually is about twelve per cent.

Q. This patent states that the bleaching increases it, is that true?

A. I don't think it does, never found it that way.

Q. This patent states that the bleaching diminishes the starch, is that true?

A. I don't think it is; I brought that out in one article that I presented to the miller.

Q. The patent states that it increases the proteids, is that true? A. That is not true.

Q. The patent states that it bleached to a dead white, is that true?

A. That would depend on the extent to which the process is carried.

Q. Did you ever carry it to a pure white?

A. I carried it to a pure white.

Q. Did you measure the color?

A. Pretty hard to measure it when the color is all gone, I don't know just what you mean.

Q. Well, did you test it scientifically for color?

A. Oh, I would call it dead white.

Q. Oh, no, you mean to a white? A. To a white.

Q. Are you familiar with the methods of measuring color?

A. Yes, they are no good.

Q. What colors are in flour?

A. I don't know, a color test of that kind could not be of any value from a commercial standpoint.

Mr. Butler: I move to strike out his language "for a commercial purpose."

The Court: Yes, sir, that is stricken out.

Q. Now, for scientific purposes I want to know if you know what primary colors make color even in white flour?

A. No, I do not.

Q. You don't know? A. Don't know.

Q. Did you ever hear that is was orange and yellow?

A. I have heard that; yes.

Q. You don't know anything to the contrary do you?

A. I know it is yellow color, but I couldn't say.

Q. Did you ever know that the two primary colors were yellow and orange; did you ever know that?

A. The only color I have been able to get was a kind of yellowish orange.

1950 Q. I mean scientifically do you know?

A. I have not investigated that phase of it especially.

Q. Did you ever treat it step by step to see what effect it had on the orange and what effect it had on the yellow?

A. I treated the color itself.

Q. Yes, but did you measure the reduction of orange and the reduction of yellow? A. I have not done that.

Q. Do you know that orange is much the stronger color than yellow?

A. I think it is rather a more brilliant color than yellow.

Q. And do you know that if you eliminate the orange and leave the yellow the flour will appear to be much whiter than it was before you started?

A. Well, that is all we are after, to get it whiter.

Q. You know that is a fact scientifically, don't you?

A. It might be.

Q. And do you know that the bleaching even increases the yellow from the moment you start and reduce the orange that it will still look whiter?

A. It might be an optical illusion, I doubt it.

Q. That would be an optical illusion, would it?

A. It would to me, if you put more color in it and still had less there.

Q. But there would be in it one which is a strong one and a weak one, and you take out the strong one, it might be lighter—is that too hard for you? A. That is too hard for me.

Q. Do you know what the Xantho reaction is?

A. Yes, sir.

Q. Will nitric acid produce it on bread?

A. It won't unless you get a lot of it in it. I have got some on my finger.

Q. Yes, sir, show that to the jury, will you, show that nitric acid will do to your finger?

A. There is a faint tinge of it there on my finger; I get it there sometimes, can you see it?

Q. Do you think that would be the same thing inside of your stomach? A. No, sir.

Q. Why?

A. Because you would not bet it strong enough there in flour.

1951 Q. Nitric acid would not hurt the inside of one's stomach?

A. Oh, if you get concentrated nitric acid there it would.

Q. I was not asking you about flour or diluted nitric acid. Was that nitric acid that stained your finger, nitric acid in flour?

A. No, sir, that came in a bottle.

Q. Would that same amount of nitric acid tear your stomach?

A. Not in the strength it is in flour it would not hurt it at all.

Mr. Butler: I move to strike that out.

The Court: It will be stricken out.

A. If there is any in flour, there is none there anyhow.

Mr. Butler: I move to strike that out.

The Court: It will be stricken out.

Q. Would the nitric acid which turned your finger yellow, turn it yellow inside your stomach?

A. I don't know just what you mean now.

Q. Isn't your finger turned yellow by the nitric acid?

A. Turned yellow.

Q. Would that same nitric acid which turned your finger yellow,—that was in the nature of a burn, wasn't it?

A. It was.

Q. Then you understand what I mean when I say the nitric acid which burned your finger and turned it yellow, do you understand that? A. Yes, sir.

Q. Wouldn't that do the same thing to your stomach?

A. There are juices in the stomach which would dilute to such an extent that it probably would not, the amount I had on my finger, it might a little.

Q. You think it would not?

A. It might a little.

Q. Do you think it would be wholesome to use nitric acid as a potable drink? A. Not very much of it.

Q. How much would you like to drink?

A. I should not want to make your sort of test.

Q. Is that the only reason?

A. Not answering from a [toxicological] standpoint.

Q. You did tell me it would not hurt the stomach because of the juices of the stomach?

1952 A. I said it would not yellow it because it would be too dilute.

Q. Wouldn't it hurt it?

A. I don't know that it would hurt it, probably if you got enough of it there it would.

Q. You think a large quantity would hurt you more than half of the quantity don't you?

A. A hard blow would hurt more than a light one.

Q. I big dose of poison is generally worse than a very small one, isn't it? A. Sometimes, unless—

Q. Sometimes a very small one is too, isn't it?

A. Some materials.

Q. Did you ever examine the stomachs of people after death to find out whether they had been poisoned to death or not?

A. I have examined some of them.

Q. If you find some strychnine in the stomach do you think you could say you found poison in the stomach? A. Yes, sir.

Q. If you found any strychnine you would say you found poison in the stomach?

A. I think probably you could, although you couldn't say it was put there as a poison to kill a person.

Q. You couldn't say who put it there, but you could say you did find the poison?

A. Yes, couldn't say that it was employed as a poison in that case, necessarily.

Q. And if you get enough to give you the re-action you would say there was a poison in the man's stomach?

A. I think that would be the common phrase that was used because—

Q. And even if that was nitrous acid you would say there was a poison in the man's stomach, wouldn't you?

A. No, I should not, because that is a normal constituent of food.

Q. Nitrous acid is?

A. Not all nitrous acid, but the same material that gives the nitrates.

Q. I am not quibbling about the materials at all myself; I am talking about nitrous acid. I ask you if you find nitrous acid in somebody's stomach, whether you find a poison in it or not?

A. I don't think that I can say that I would always.

1953 Q. If you found nitric acid in somebody's stomach what would you say.

Q. Qualifying, that small quantities are not poison, I couldn't necessarily say so.

Q. If you found the prussic acid re-action in somebody's stomach would you say you found a poison in it just enough to re-act?

A. Couldn't always say that, because it is present in certain drinks.

Q. Well, it don't make any difference where it is present, if you find it in the stomach it would not change whether he took it with food or drink?

A. Well, if alcohol is present, it would be the poison.

Q. So if you got a postmortem examination and found some lager beer in a man's stomach, would you say that you found a poison there?

A. I don't think I generally would, no.

Q. Would you class the lager beer the same as you would nitrous acid or the prussic acid re-action?

A. It can be taken in larger quantities. Why do you ask me this question?

Q. I ask you the question because you insist upon saying that everything understood to the world as harmless is a poison, and when I ask you whether those things which are understood to the world as a most deadly poison you decline to say that they are without qualifying and saying in concentration and certain quantities; that is why I ask you. I can't understand a scientific gentleman who will say, without qualification, that the flour in that jar, one kilogram of flour, is a poison.

A. I beg pardon, I qualified it and you objected to my qualification.

Q. Now, you would say that a man who says that that kilogram of flour is a poison, without any qualification, and I ask the same man if strychnine is a poison, and he refuses to say that it is without qualifying it. A. It is given as a medicine.

Q. You would denounce that as quibbling, wouldn't you?

A. I can't say that I would.

Q. You can't say that you would?

A. Because it is necessary to make yourself understood, to qualify it.

1954 Q. Yes, I see; so you think you would make yourself perfectly understood by saying that flour is a poison, do you, without qualification?

A. Why, we all know it is not a poison, when you use it properly we all know it is not a poison when you use it properly.

Q. So you say that the man who says without qualification that that flour is a poison is not tell the truth, don't you?

A. No, but when he is on the witness stand here and harrowed down for the purpose.

Q. Did Wesener tell you what he said about it?

A. No, sir; when he is harrowed down for the purpose it is necessary to qualify to make himself understood.

Q. Did he tell you he was harrowed down?

A. Why he said that you and he had some quite smart tilts.

Q. He thought that was smart, did he?

A. I don't know that he did, he didn't give you a very high compliment for it.

Q. Yes, I know, he didn't tell you that he ruled down here in Kansas City that that very kilogram of flour was a poison, without qualification, and ruled that strychnine and prussic acid was not?

Counsel for claimant objected to the question because he didn't say that.

Q. Now, ordinarily, in the ordinary course of things in life, not viewed from a scientific standpoint, if you put into an article of food a substance having an offensive taste, will that taste be liable to be in the food?

A. It depends upon the material put in.

Q. Yes, well, I know, but generally speaking?

A. You put yeast in, it has an unpleasant taste, but does not interfere with the bread at all.

Q. It affects the taste of the bread, doesn't it?

A. Not the unpleasantness does not, no, sir.

Q. I am not asking about unpleasant or pleasant, but bread made without yeast doesn't taste the same as bread made with the yeast? A. Sure it does not.

Q. So the yeast affects the taste of bread? A. Yes, sir.

1955 Q. So generally the lard and the other ingredients affect the taste of bread? A. Certainly.

Q. Now, if you put NO₂ in bread would it affect the taste of it?

A. Put enough in there, I put quite a lot in, couldn't get any taste.

Q. But it has an offensive taste? A. Yes.

Q. Now, if you put in perfume in bread would you smell it?

A. Some of them, some of them you would not because it volatilizes.

Q. By the way did you discover this terpene?

A. I have been working along that line for some time, got it pretty well fixed in my mind.

Q. Terpene is the same oil, or at any rate the terpenes give the rose and flowers their beautiful odor, do they not?

A. I couldn't say whether they do or not.

Q. It is an essential oil, the terpenes are the essential oils of plants, are they not? A. Yes, sir.

Q. And when you smell a beautiful bouquet the essential oil is terpene? A. Yes, sir.

Q. You know that as a scientist. Don't you know terpenes are transparent, according to all the authorities in the world, and turn yellow as time goes on?

A. Sometimes they turn yellow.

Q. Well, that is the rule in terpenes?

A. That is the rule.

Q. Now, chemistry, among other things, identifies substances by certain characteristics; do I make myself clear?

A. Yes, sir.

Q. So that the characteristics identifying terpenes are that they are the essential oils of plants, that at first they are transparent, may be found in plants of great varieties of color, but as time goes on they resily like terpene, that is the truth, and those are the great facts in chemistry which identify terpenes as such? A. Sure.

Q. And there is not known to the chemistry of the world, is there, unless it be the discovery in your laboratory, any terpene which reverses the situation, is odorless instead of being transparent, is yellow at first and as time goes on clarifies and becomes transparent now in the history of the chemistry of the world no such thing was ever known, isn't that 1956 true?

A. Coloring matter has not been very thoroughly understood.

Judge Scarritt: We except to that speech.

The Court: No, he didn't ask that.

Q. It is true, isn't it, that in all of the history of chemistry of the world there was never known a terpene at the same time odorless, yellow to begin with, and clarifying with the lapse of time?

A. It is only a few years that they have understood terpenes at all.

The Court: He didn't ask you that. Please answer that question; let's get along.

Q. Now, if flour freshly milled be treated with the Griess test before bleaching will it give the nitrite re-action?

A. In general.

Q. If it be tested immediately after the bleaching will it give the nitrite re-action? A. It will.

Q. Always? A. I think always as far as I know.

Q. Never known an exception to it, did you?

A. I have not tried any where there was one.

Q. Have you ever computed the amount of nitric acid which may be produced by a five horse power dynamo employing the flaming arc to produce it?

A. I do not recall now that I have done any work that would give that proof, no.

Q. Is it not a matter within your knowledge, at any rate as a chemist, that the Burkeland-Eyde process, which uses the flaming arc? A. I believe that is the process.

Q. And in the commercial manufacture of nitric acid?

A. Yes, sir.

Q. And there concentration is about seventy per cent, the nitric acid of commerce? A. I would not state as to that.

Q. Well, the nitric acid of commerce is about seventy per cent, isn't it? A. There are varying strengths.

Q. I know, but if you order a carboy of nitric acid
1957 you would get about seventy per cent?

A. I think we get a stronger acid frequently.

Q. How strong?

A. I couldn't say, I couldn't tell you off-hand.

Q. Is it within your knowledge that five horse power to make the flaming arc will produce three and one half tons of nitric acid of seventy per cent concentration per annum?

A. I have not calculated that out.

Q. You are not prepared to say?

A. Not prepared to give testimony on that point, no, sir.

Q. You say that is not true, are you prepared to say that a five horse power dynamo such as used commonly in Alsop bleaching will not produce nitric acid if it be used to make nitric acid?

A. It will produce nitric acid if it be used to make nitric acid.

Q. And it will produce it, will it not, at the rate of about three and a half tons per annum?

A. I would not say without calculation.

Q. Three and one-half tons per annum.

Judge Helm: Day and night, do you mean?

Mr. Butler: Yes, sir, both day and night, the full time.

Q. You would say that three and one-half tons nitric acid is a deadly poison, isn't it?

A. It depends on what you did with it.

Q. Well, wherever it was, it would be poison, in a court it would be poison, in chemistry it would be poison, in the stomach it would be poison, it would be poison everywhere in the world, wouldn't it?

A. There is a chance for variation definition there.

Q. The same variation?

A. There is a chance for variation and definition there.

By the Court:

Q. Let me see if I understand it. You claim anything is poison or not according to concentration and what it is used for? A. Yes, sir.

Q. And a bottle of strychnine, suppose it is not used, is not a poison?

A. It would depend on how it was used, whether it was a poison or not.

1958 Q. If not used it is not a poison?

A. Does not make a poison.

By Mr. Butler:

Q. It is not a poison unless somebody uses it?

A. It does not become a poison until put in a position to produce a poisonous effect.

Judge Scarritt: What he means, it has to be compounded with something else.

By Mr. Butler:

Q. So then all these laws requiring a druggist to label poisons, are no good, because there are no poisons?

A. No, that does not follow.

Q. What is the law of mass action in chemistry?

A. What are you trying to get at, please?

Q. Is there a law in chemistry known of mass action?

A. Well, I don't know that I can state it to you, just interpret to you just what you mean on that point.

Q. Well, I mean this, is there a phrase in chemistry designating a law, a chemical law, known as the law of mass action?

A. I think there is, yes, sir.

Q. What is that law?

A. I cannot state it now, I haven't got it clearly in my mind, it would be, the definition, in the book.

Q. Do you think you would recognize it if I stated it?

A. I might.

Q. It is this: Given a substance, complex in character, containing a variety of bases and treated with an acid like hydrochloric acid, we will say, is it not the law of mass action that that acid will combine with every element in the mass for which it has any chemical affinity?

A. I think that law is true, I will not define it as you name it.

Q. Has nitric acid any affinity for proteins? A. Yes.

Q. Has it any affinity for starch?

A. Yes, I think acid has.

Q. Has it any affinity for the vegetable oil in flour?

A. Well, that is a little different,—yes, it will act upon them.

Q. So I have mentioned roughly the principal groups, haven't I?

1959 A. You have stated the chief elements.

Q. The principal elements of ordinary flour? A. Yes.

Q. So, then, it is the law of mass action, is it not, that if flour be treated with nitric acid, the nitric acid will combine with the proteins, with the starch and with the oil, and if there be not enough to satisfy each base, satisfy it chemically, it will distribute itself among the various bases, depending upon the volume of quantity of each base and the strength of the chemical affinity between nitric acid and each base; that is the law?

A. If you apply nitric acid it will combine with these different constituents if you had enough of it there.

Q. And even though there is not enough to satisfy the chemical affinity of all of the bases or of any one of the bases it will distribute itself according to the law of mass action to all of the bases in the bleached flour it has any affinity with?

[A. It may distribute itself according to the law of mass action to all of the bases in the bleached flour it has any affinity with?]

A. It may distribute itself, it will combine with some, it will not with others.

Q. Well, it will combine with all, in some degree, if there is any chemical affinity?

A. It is a little different in organic products combining like flour than it is with acids in bases in the solution.

Q. You say the law does not apply to flour?

A. Not so much.

Q. Do you say it does not apply at all to flour?

A. I don't believe that you can take that position.

Q. It will satisfy terpene first?

A. I don't think nitric acid will satisfy terpene at all.

Q. Will any of the oxides of nitrogen? A. Yes, sir.

Q. Which one? A. N_2O_3 will, I think.

Q. That is a liquid, isn't it? A. I guess not.

Q. N_2O_3 is not a liquid?

A. I don't think it is; it has not been isolated as a liquid, as far as I know, it might be gotten down to that point.

Q. Isn't it a bluish liquid and is only known in the form of bluish liquid, and isn't it so laid down by all text-
1960 books on chemistry?

A. If you unite it with what was that substance you are speaking of,—it may be,—I should think.

Q. You spoke of it. A. Nitrogen peroxide.

Q. N_2O_3 , I did not intend to mention that.

A. Now, it unites with water to form a greenish substance which is probably the nitric acid.

Q. It has affinity with water?

A. It has affinity with water.

Q. Strong?

A. Well, not as strong as some other acids have.

Q. No, but is it a strong chemical affinity?

A. It will go in solution in water but get out if it can.

Q. It is not known as a gas at all, is it?

A. That is a pretty hard thing to say just what it is.

Q. Isn't it laid down in the chemistries of the country, and uniformly of the world, that it is not known as a gas?

A. It is usually found in a gaseous condition where it is.

Mr. Butler: I move to strike that out as not responsive to my question.

A. I could not answer it any other way.

Q. I am asking you isn't it within your knowledge that the text-books on chemistry do state that it does not exist as a gas?

A. I think there are some textbooks that state the contrary.

Q. Which one?

A. I think Remsen, if I remember right; I don't mean Remsen, I mean Roscoe and Chalmer, I think states that, if I am not mistaken, I may be mistaken.

Q. The common understanding as evidenced by the articles is that it does not exist as a gas?

A. It is two gases exist there together, and when they go in combination they combine as N_2O_3 .

Q. To form a liquid?

A. To form with water a liquid, the nitrous acid or a nitrite with bases, but now I don't believe that there is very good authority on that question as to whether they really exist as gas nitrates N_2O_3 , or whether they do not; that is a question as far as I am able to determine, but I know that when the two are present—

1961 Q. NO_2 is a gas? A. NO_2 is a gas.

Q. NO is a gas?

A. NO is a gas, and when those two are brought in combination in the right proportion they form nitrates or nitrites.

Q. Form what?

A. Form a nitrite, form with bases a nitrite or nitrite.

Q. Is that organic or inorganic?

A. When they are brought in combination.

Q. That forms a nitrate either organic or inorganic, depending on the base?

A. As they differ with the bases, I don't know that I can say they have always an organic substance, but they differ, the alkaline basis, such as KOH and NaOH.

Q. So it would put nitrites in flour?

A. Not necessarily, no, because you get an organic substance there, a different nomenclature entirely.

Q. Will you go to the blackboard and write the chemical re-action for the formation of nitrite from N_2O_3 ?

A. That is a pretty big undertaking for a person on the witness stand, I will try.

Q. Perhaps you do it on a piece of paper, I don't want to rub that out because I had so much trouble learning it, put it on here.

Mr. Elliott: Mr. Butler, will you kindly repeat the question so the witness knows what he is doing?

Mr. Butler: I think he holds it in mind; he would not try it unless he did, I am sure.

Witness: I guess I got it.

Q. Read it.

A. N_2O_3 plus H_2O equals $2HNO_2$. It figures four on that side, four on this side, two on this side, two on this side; I guess that is right.

Q. That is the chemical re-action that takes place, is it?

A. I think that is about what they would count on.

Q. And N_2O_3 is a gas, is it?

A. That is the material which when it comes together in liquid makes that compound. I think some of the textbooks state if you get NO_2 gas and NO that they produce a nitrite when they come in contact with the base, I couldn't see now, those molecules, to see how they start.

Q. I know, but what I am trying to find out is in this re-action that you have written have you admitted that the N_2O_3 is a gas or a liquid?

1962 A. I assume that it is a combination. I may write NO_2NO that would be the same.

Q. Is a mixture the same as a compound?

A. When it results the same, the textbook—

Q. Is NO_2 plus NO a compound?

A. If you pardon me, I think the textbook which I referred to, which is a very good one, states that it may multiply the material in certain ways and then expose it to the test, then that it may be assumed or may be thought that you have the NO_2 present and the NO_2 that will unite with that base to form the nitrite. That is the understanding of it.

Q. Isn't it the common understanding by chemists that N_2O_3 exists only in liquid form?

A. I can't say that it is.

Q. Will you say that it is not?

A. I say that the common understanding is that those two gases may exist there together and that they combine, that is as far as I can go.

Q. So no matter how it is, if we take N_2O_3 and bring it into contact with water it will produce nitrous acid?

A. If you bring it in contact with a liquid, with water.

Q. And nitrous acid will form nitrites in flour, won't it?

A. No, that don't follow.

Q. Do you say nitrous acid will not form nitrites in flour?

A. If you put nitrous acid in flour it would.

Q. Does it make any difference whether you get it out of a bottle or produce it chemically?

A. It makes a difference whether you put it in there as nitrous acid or put it in there as N_2O_3 .

Q. I am speaking of nitrous acid.

A. I know, but we got to draw a distinction.

Q. I know what distinction you are drawing.

A. May I tell you I have put nitrous acid in flour and took it free from it, and I found it was no bleaching effect and it would be there as nitrous acid.

Q. So you are satisfied nitrous acid does not bleach?

A. I am satisfied nitrous acid as nitrous acid does not bleach.

Q. You are satisfied that nitric acid does not bleach?

A. I am satisfied that nitric acid does not bleach.

1963 Q. And so you are pretty well satisfied that the Alsop people cannot convict the NOCl people of infringement aren't you?

A. I am not talking of the patent whatever.

Counsel for claimant objected and moved that it be stricken out.

The court sustained the motion and objection.

Q. You are familiar with the Williams process?

A. I know something about it.

Q. Does the bleaching process by the Williams' method employ any of the steps of the program NO2?

A. I think there is generally NO2 produced in the process, but I can't say to what extent, it may be prominently, I don't know.

Q. In the Naylor-Genard there is?

A. I have not examined the gas from that machine and would not answer, although I have it stated to me that it was the contrary.

Q. In the Nordyke-Marmon system?

A. I would not enter into that without having examined the gases.

Q. Have you examined flours bleached by all systems, the Williams included? A. I think I have.

Q. And the nitrocyll chloride and all that?

A. I have seen flour from all over.

Q. And did you observe any difference in flour?

A. I would not say, they are all alike.

Q. Bleached, partly bleached flour, as far as every bleaching process known in this country, it affects flour alike?

A. Yes, it removes the coloring matter, that is all it does, if it is commercially carried out.

Q. If it is more than that it is not commercial?

A. It is not used commercially to do more than that.

Q. But if it is more than that it is not commercial?

A. It is not used commercially to do more than that.

Q. What substance or substances in bleached flour give the Griess test?

A. To the best of my knowledge it is a body that is produced by the action of oxides of nitrogen upon the coloring matter.

Q. Give us the formula of the body?

Q. The formula—it might be written C10H16.

1964 Q. That is this terpene?

A. That is called a terpene, that is the general formula for terpene.

Q. That is the formula for the terpene of the rose, isn't it?

A. Well, I have forgotten about the rose, there are terpenes in some of the essential oils that are of that nature, but I couldn't say now.

Q. But all of the essential oils are of that formula?

A. I don't know that they are, there are other constituents.

Q. Do you know to the contrary?

A. Yes, methyl oil of winter-green, that is not a terpene.

Q. You said all essential oils, all of the essential terpene oils have the same formula, don't they?

A. No, not necessarily.

Q. What terpene has a different formula?

A. The homo-terpene and polly-terpenes and a lot of other terpenes.

Q. I mean the simple terpenes?

A. The base of terpenes is $C_{10}H_{16}$, there are a number of terpenes of that formula.

Q. That is the [bases] of all of them?

A. That is the base with reference to them, but not necessarily the base, because the semi-terpene is just half of the formula.

Q. Nitrogen peroxide may be N_2O_4 just the same, may it not? A. Yes, it may be.

Q. But it is always referable to NO_2 ?

A. Always referable to NO_2 .

Q. How much NO_2 gas will it take to satisfy, how many parts per million of flour will it take to satisfy the coloring matter in the flour which is ten parts to the million?

A. Now, if you allow me to answer that with N_2O_3 I can do it with a clearer conscience.

Q. I am not acquainted with N_2O_3 , but I am very intimate with NO_2 and I would like to have it in those terms.

A. If I should refuse to believe that NO_2 combined with the coloring matter at all—

Q. I don't care what you believe.

A. If it can be put in the form of N_2O_3 I would rather do it; now, may I figure it out on the paper?

A. Yes, certainly, I would like to have you figure that 1965 accurately.

A. That would be $C_{10}H_{16}$ would be about 120, wouldn't it, if I remember, for the carbon, and 16 for the hydrogen, 136, N_2O_3 —or NO_2 , I mean, is 32 and 14 are 46; 46 divided by 136 would give the amount, would it not, of NO_2 .

Q. I really don't know a thing about it.

A. Well, that is what I thought.

Q. I don't know a thing about it; I am taking your word for it.

A. Well, that would be somewhere in the neighborhood of 33 or 34 if my figures are correct.

Q. Parts to the million?

A. No, per cent of the coloring matter.

Q. What?

A. 33 or 34 per cent of the coloring matter would be, that coloring matter would be increased in about that proportion, I might tell you some experiments.

Q. No, let me be sure that I understand it.

A. All right.

Q. Now, I suppose there could be employed more NO_2 than you can treat flour with, more NO_2 than would go into the terpene?

- A. May I tell you what I did along those lines years ago?
- Q. No, let us be clear; I am after a very simple matter.
- A. That would clear it up.
- Q. Well, I will ask it my way, Professor. A. All right.
- Q. And you may answer it my way, or decline to as you see fit. I want to find out from you how many parts of NO₂ to the million of flour will combine with the terpene the minimum amount of NO₂, you have ten parts of terpene per million of flour? A. Ten parts of terpene per million of flour.
- Q. That you have sworn now?
- A. I said that was to the best of my memory was about it.
- Q. Now, ten parts to the million of terpene? A. All right.
- Q. One part to a hundred thousand?
- A. Now, if we may take—
- Q. Now, I want the amount of NO₂ expressed as nitrogen that it will take to combine chemically with that terpene?
- A. Now, if we take 34 percent of that amount or practically one-third of that amount, that would be three parts
- 1966 per million of N₂O₃ that we should have combined with that terpene, wouldn't it?
- Q. I don't know.
- A. Well, that is according to the best of my figures, about one-third of that, 34 per cent in practically one-third of the weight of the terpene if I made no mistake, I make mistakes in figures.
- Q. How many parts per million of the gas would be used to combine with that terpene?
- A. Beg pardon, the question I was to answer was the amount of nitrogen.
- Q. Yes, very good. A. The amount of nitrogen.
- Q. Very good.
- A. All right. Now, the nitrogen N₂O₃ is a little less than one-third, N₂O₃, isn't it. 169 oxygen and 149 nitrogen?
- Q. Yes.
- A. We had to take over three parts per million of the N₂O₃ that you combine with the coloring matter which we had assumed that it is more than here, didn't you?
- Q. I am not talking about N₂O₃ at all.
- A. Beg pardon, I meant to say NO₂, that was a misstatement. We have about one-third of ten parts per million of NO₂ that should combine with it, and about one-third of that, one-third then is nitrogen which would be in the neighborhood of about one part per million which is about the average which we find in bleached flour, we may have more coloring matter, or we may have less coloring matter.
- Q. So then your idea is one part per million of the gas if calculated as nitrogen would satisfy the terpene chemically?

A. It might satisfy it would satisfy the terpene chemically if my calculation was right.

Q. Now, let me be clear about that? Given ten parts of the terpene per million?

A. That is about it, that is one-third of one third.

Q. If the figures are not exactly right, why, you have stated it is your best memory? A. Yes.

Q. So we will assume it is ten parts per million of the coloring matter, the terpene? A. The terpene.

Q. Now, one part per million computed as nitrogen or calculated as nitrogen?

1967 A. Should be somewhere in that neighborhood, might be more or less.

Q. Will satisfy all that coloring matter?

A. That would be somewhere near it, yes.

Q. And would impart one part per million of nitrogen, of nitrous nitrogen to the flour? A. How is that?

Q. And would impart one part per million of this nitrite re-acting material to the flour? A. Yes, sir.

Q. Now, then, in the flour which you found four parts per million in, what became of the other three; you have only used one-fourth of it on the coloring ingredient; what did you do with the other three-fourths?

A. Well, I couldn't tell you what we might do with the other three-fourths because I don't know how much coloring matter there may be more coloring matter than that there.

Q. But let us assume that there was no more coloring matter, and that one part to the million of the gas calculated as nitrogen— A. Yes.

Q. Satisfies the ten parts of the coloring matter?

A. Yes, it might be a wrong assumption.

Q. Yes, but assume that. A. Yes.

Q. But you do find four parts per million in the flour?

A. Yes.

Q. Now, how do you explain that?

A. Well, I have not explained it.

Q. Can it be explained?

A. I don't know whether it can be explained or not; I suppose it can.

Q. Why would you say that that was not commercially bleached flour?

A. It was not commercial bleached flour, yes.

Q. You would say that it was over-bleached, over-treated?

A. There is a way that it might be explained, and that is on this assumption—

Q. That it combined with something else in the flour?

A. There are ammonium nitrites there to some extent, and some of those may have adhered to the flour; I can't say as to that.

Q. You couldn't say as to that? A. No, I cannot.

Q. It might combine with bases in the flour?

1968 A. What bases in the flour, for instance?

Q. Any of them. A. But what would they be?

Q. Aren't there a lot of bases in the flour, potassium, calcium?

A. But they are not there as bases, they are already acids.

Q. Oh, I see.

A. They could not combine with them.

Q. Protein hasn't a base?

A. Protein will combine with acid under certain conditions.

Q. It might combine with the terpene?

A. It might combine with the turpene, but that is—

Q. That might produce a nitroso compound?

A. It might produce a nitroso under compound these conditions.

Q. Or a nitro compound?

A. Possibly a nitro compound under those conditions if you have it there as N_2O_3 .

Q. Or a xantho proteic re-action?

A. Never found it under those conditions.

Q. No, but it might chemically?

A. Have to get it awful strong to do it.

Q. That is right, so that you say that it is true, do you not, that if more of the gas be used [that] will satisfy the coloring matter which you think is ten parts to the million, the excess, at least if we consider the combination with the color an exception to the law of mass action— A. Yes, sir.

Q. The excess at least will go in part to the proteins?

A. It might go, a good thing if it did sometimes.

Q. And it would form nitroso compounds and nitro compounds, and if strong enough the xantho proteic re-action?

A. It might do so, yes.

Q. And according to the laws of chemistry you believe that it would do that, do you not?

A. I believe it would combine with the proteids pretty soon after you got an excess of it there.

Q. And you don't think that would affect the color of the flour injuriously?

A. I am sure it would not because I put the acid in there to affect the proteids.

Q. It would not affect the smell of it?

1969 A. It would not, no, sir.

Q. Nor it would not affect the taste of it, would it?

A. No, sir.

Q. And nitroso compounds and nitro compounds produced by the oxidation of nitrogen through nitrous acid, through

nitric acid—this may not be your field, and if not, we will not enter upon it.

A. I would not want to.

Q. Is it desirable in food?

A. I don't know whether it is or not, nobody stated, because we don't know all the chemistry of all these foods yet.

Q. Well, I am sure I do not. Have you your table of acidity showing your results in the tests of acidity there in Kansas City, with you?

A. I think I have some tables, I am not sure.

Q. Now, just wait a minute, let me be clear, you have examined for acidity a great many thousand times?

A. I have examined a great many flours for acids, don't know how many.

Q. Well a great many?

A. Off and on for a good many years.

Q. Have you preserved the records?

A. Not all of them, no, I would have to get them and compile them if I did.

Q. But you have compiled certain records?

A. I have some records, yes, and I tell you what I did.

Q. Now, wait a minute. You understand acidity to be undesirable you understand it to be undesirable to increase acidity? A. No, sir.

Q. You think it is desirable?

A. In many instances it is absolutely essential to get the best results.

Q. Mineral acid?

A. Yes, sir, you employ different acids; if you put mineral acids in bread you can smell it in small quantities.

Q. So the bleaching does not improve it then, that way because it gives it more mineral acids?

A. I can't say that it does, it might do it and might not, and you get poor bread with it.

Q. Will it improve it to increase mineral acidity by adding nitrous acid? A. I can't say it does.

Q. Does it injure bread?

A. I have made bread that tasted just as looked just as good and smelled just as good and everything where I added it there.

1970 Q. Does it improve bread to increase acidity by the addition of nitric acid?

A. I don't know why it would hurt it in any way, a little of it wouldn't hurt anything.

Q. Or would you think it improved it?

A. I say I don't know that it hurts it in any way.

Q. I ask you if it improved it?

A. Oh, it makes a larger volume of certain flours.

Q. The bleaching process makes a little larger volume than the unbleached? A. Sometimes it does.

Q. I know, but wherever you get any variation that is the truth? A. That is generally the case, yes sir.

Q. So then you say that bleaching so affects the gluten as to increase the loaf volume?

A. Sometimes it helps to increase the loaf volume.

Q. I know, but suppose the law would seem to be that it so affected some substance in the flour as to increase the loaf volume?

A. Yes, sir, might remove the moisture and give you a creamy more solid flour there and then increase the loaf volume.

Q. Let me see about that. Now you find that the moisture is decreased about 1/10—you find, do you not, that the bleaching decreased moisture about 1/10 of one per cent?

A. I have not so stated.

Q. No, but isn't that a fact, I ask you if you did not so find?

A. I think it often increases it more than that.

Q. Decrease you mean? A. Decreases it more than that.

Q. Well, didn't you report it was .14?

A. That is the moisture you know.

Q. The moisture I know?

A. Now what are we getting at?

Q. You said that bleaching decreased moisture?

A. Bleaching by passing air through it.

Q. I didn't ask you how it decreased moisture?

A. Why sure, but the air takes the moisture away.

The Court: You talk too much.

Witness: I would like to quit right now.

1871 Q. If you will just be fair with me and answer my question. Have you not reported determinations that indicated that the moisture is decreased from 1/7 to 1/10 of one per cent? A. I may have reported such.

Q. That is the truth, isn't it?

A. It ought not to decrease it more than that.

By the Court:

Q. Is it the truth or not?

A. I couldn't tell you that, I couldn't tell you that because I find thousands of flours—

By Mr. Butler:

Q. Now then let me find out—the air will decrease moisture, will it not? A. Sure.

Q. Without any gas in it?

A. The moisture goes through the air, yes.

Q. It is not chemical reaction with any of the oxides of nitrogen that reduces the moisture, is it?

A. No, sir, not at all.

Q. Now then do I understand that if a housewife would go to the mill and get some flour, and dried it out a little and immediately used it to make bread, it will make a larger loaf?

A. Sometimes it will, sometimes it won't flours are variable.

Q. What is the law about it?

A. Well, it depends on the flour entirely.

Q. Depends on the flour entirely? A. Sure.

Q. Some flours will do it?

A. Some flours will increase the volume of drying out and others not so much.

Q. Will they all? A. Some of them will and some won't.

Q. There is no law about it then?

A. I don't think there is; I have examined thousands of flours; if you give me any constant law in flours I would like to see.

The Court: He didn't ask you for a lecture.

Judge Scarritt: He has a right to explain.

The Court: The witness has no right to deliver us a lecture every time some question is asked.

1972 Judge Scarritt: I submit he has a right to answer that kind of questions in that way, because they are an attempt—they are trick questions right straight through, and attempt to catch him and not allow him to explain to put him down on something.

The Court: I don't see any trick question about it. I as a non-scientist could answer that question yes or no, and I think this witness can, he ought to do it.

Witness: Can I tell the difference?

The Court: No, please answer the question, and let's get along.

Judge Scarritt: I think the court ought to protect the witness.

The Court: I think I ought to protect the jury and myself to bring this case to a conclusion some time,—a very simple question whether air will take off moisture or whether it must be attended with some resulting gas from this flaming arc.

By Mr. Butler: (resuming.)

Q. Did I understand you aright to say that not so far as you have been able to observe that the only effect upon digestibility of food—the only effect of bleaching upon the digestibility of food products made from flour was to improve it?

A. No, sir; I said that sometimes we get higher results and sometimes also they were very close together.

Q. Well, what is the effect then of bleaching on digestibility?

A. I don't think there is any effect on the digestibility from commercial bleach flour.

Q. But every time you found any change it was in favor of improvement?

A. In some experiments with thoroughly overbleached flours and investigations I get an improvement in the digestion.

Q. So the more you bleach it the more digestible it is?

A. Yes, the reason for it,—there is a reason for, very simple to the physiological chemist.

Q. So all overbleaching so far as you demonstrated with it, had some effect on digestibility?

A. Why, certainly, you can treat it so that you can produce an effect that is not ever produced in commercial flour bleaching.

Q. Well, I mean also that you argue, do you not, that there would be a similar effect if it was not bleached quite so much?

A. No, not at all, I said that I did not believe there is any difference whether it was bleached or not bleached on the digestibility.

Q. Will you dictate to the reporter the details of your digestion experiments or methods?

A. I have a whole lot of digestion experiments that were carried out along those lines. Now do you want the figures and everything? I can read them off my paper.

Q. I would like to know your methods, you see your figures don't show anything but I would like to know your method?

A. All right.

Q. Your figures don't show whether it helps it or hurts it.

A. Sure.

Q. Now I would like to know your methods?

A. First I made some bread from the flour bleached and the unbleached.

By Judge Scarritt:

Q. You say you have your figures there?

A. I have figures here, yes, sir.

Q. You can use them if you want to.

A. I can put the figures in afterwards if it is necessary. I will just give an outline of the detail, will that be satisfactory?

By Mr. Butler:

Q. Well, Professor Teller and Judge Scarritt, I think I can make it plain to you there is no trick about this. I want to find out what method he employed in his digestion experiments. I said I didn't care for his figures.

Judge Scarritt: I beg pardon.

Mr. Butler: Because he says his figures don't show anything one way or the other from which a conclusion can be drawn.

Judge Scarritt: It shows that they are the same.

1974 Witness: Shows that they are the same, might be slight differences but within the limit of error.

Judge Scarritt: I don't understand what you mean by method, whether the Koellner method or some other method.

By Mr. Butler:

Q. Is the Koellner on digestibility?

A. No, sir, that is on bread making. The digestion experiments I state to you were all made in laboratory experiments.

Q. I so understood you.

A. All right. I first made the bread from the bleached flour and the unbleached flour.

Q. Exactly alike in each instance?

A. Exactly alike as near as it was possible to make them, manipulated in exactly the same manner and the same ingredients.

Q. By the Koellner method? A. Koellner, no.

Q. How did you make the bread?

A. It was made by the usual method there in the bake shop which we use in our laboratory room, took a certain amount of flour, and a certain amount of yeast and water—do you want that?

Q. Yes, go on.

A. A certain amount of flour, certain amount of yeast, sugar—

By the Court:

Q. Lard and salt. A. Lard, salt and water.

By Mr. Butler:

Q. Yeast?

A. I think I stated yeast. If I have left out anything it was by oversight, because they are all there, and the bread was made.

Q. Now go on.

A. After the bread was properly baked, I grated the interior of the loaf in a nutmeg grater or something of a similar

nature, it might have been a little larger, got the size particles as nearly uniform as possible, put them in a liquid which resembled to a certain extent the digestive fluids in the stomach, one was for pancreatin, the other for pepsin. For the pepsin experiment I think we used about 20 milligrams of pepsin, as I remember it now, and 3/10 of one per cent of hydrochlorid acid, kept these together with the bread in the bath for 1975 one hour at a temperature of substantially that of the the body.

Q. The quantity of the digestive fluid?

A. 20 grams of bread, 200 centimeters of the liquid, 3/10 per cent hydrochloric acid, 20 milligrams of pepsin, used for quantities, but that was the one that I got the most results on; it is only a question of imparting the time, rapidity of action, whether we have more or less.

Q. Go on? A. Have I stated it all?

By Mr. Helm:

Q. I think you misspoke yourself as to the hydrochlorid acid.

A. 3/10 of hydrochlorid acid, the acid of the stomach, the stomach is always [acidified], hydrochlorid acid, in fact the experiments which I carried showed it was necessary to have it so.

Q. Simply the question whether you got the quantity applied to the ingredients that you mentioned?

A. 3/10 per cent of hydrochloric acid.

The Court: Go on.

A. 20 grams of the bread ready to digest for one hour, filtered tested the filtrate with the burette to see whether digestion had really taken place.

Q. What temperature?

A. Temperature of the body, about 38 degrees, somewhere there, Centigrade.

Q. That would be 98.2/5 Fahrenheit?

A. To the fraction I forget now, only a question of rapidity, the temperature of the body is a little higher.

Q. What did you do to determine as to the amount of the bread loaf was what?

A. Determined the amount of proteid that went into the solution; I will say here that I carried on a blank—

Q. Did all the proteid go in the solution in both instances?

A. It is not, in some instances, where I used sufficient pepsin, it did; in those instances where I used less I think there was a slight residue that was not digested, but the greater part

1976 of it went into solution, and it gave the burette, which is the proof of the material having been digested; then I determined nitrogen.

Q. How did you determine the proteids to go into the solution?

A. I obtained clear filtrate, then determined the nitrogen present by the Kjeldahl method.

Q. Now was that all?

A. That was all that referred to the pepsin. The pancreatin was substantially the same, except with a solution for alkaline instead of acid, and as a result more of the pancreatin used because it is not so active a ferment.

Q. How much pancreatin juice did you use?

A. Used the same, 200 cubic centimeters of the liquid, I think about 3/10 per cent of sodium bicarbonate.

Q. Instead of the—

A. Instead of the hydrochloric acid.

Q. Those were the only differences in the flour?

A. And a little larger quantity, I guess it was, about 112 milligrams of pancreatin, I don't know which was the most active, but it was some we got from the drug store and was quite active.

Q. Was there any nitrite in either bread?

A. There was nitrite in the bread, I baked it so that I think there was 3/10 per cent nitrite; I baked some for parties that were specially high in nitrites.

Q. 3/10 of one per cent.

A. 3/10 of one part per million, I beg pardon.

Q. And in the bread baked from the unbleached flour?

A. Traces, only traces only, that we always get, can't get away from the stuff.

Q. The yeast won't consume it all?

A. The yeast sometimes will consume it all, and sometimes won't; it depends on the yeast; some makes of yeast will consume it, others may not consume it quite all.

Q. Did you determine the water contents?

A. 39 per cent of water in the three breads, I think in this one particular instance I have in mind.

Q. Did you dry the bread before the experiment?

A. Did you try it, just grated it so as to get nearly a uniform mass.

Q. Did you bake it just as you baked the other?

A. Yes, I did not grind it up that fine to put in the mouth.

1977 Q. I mean you grated it?

A. I grated it just taking the ordinary fresh loaf of bread the day after it was baked.

Q. When you undertook to grate it you took it in the same condition as you would bread to eat? A. Yes, sir.

Recess until 2 o'clock p. m.

Pursuant to adjournment court met at two o'clock p. m., Monday, June 27, 1910, and proceeded with the trial of said cause further as follows:

George L. Teller, resuming the stand, was cross-examined further by Mr. Butler, and testified as follows:

Q. If NO and NO₂, together, be led through NaOH, will not the result be the production of a nitrite, and a nitrite of sodium, and will not NO pass through as such?

A. In some instances, at least, there will not be any passage of the NO. Probably the two will combine in the proportions, to form nitrite of sodium.

Q. When the NO passes through, as such, doesn't that indicate that you started out with a mixture, and not a compound; that NO and NO₂ were mixed, and not a compound, as N₂O₃? Doesn't that so indicate?

A. If there are any bare instances where it does that way, it might indicate it.

Q. Now, isn't it laid down by, a well know chemist that that takes place, that way, and does he not assert that that is the reaction that does take place?

A. He might state that, somewhere, I do not know.

Q. Are chemical laws variable, or constant?

A. There are constant chemical laws, probably, subject
1978 to the conditions that produce variability.

Q. But, under like conditions, they are always constant, are they not?

A. Yes. We may interpret them, however, wrong.

Q. Yes, or misrepresent them?

A. Misunderstand them, and then we have to arrive at our—

Q. (Interrupting) But the laws of chemistry are definite?

A. They are quite definite, yes.

Q. And certain? A. Yes.

Q. Constant in action? A. Yes.

Q. As certain as the law of gravitation?

A. They are, under the same conditions of action.

Q. What nitrite gives the nitrite test in the flour, that has been put through the bleacher?

A. I do not know that any nitrite does.

Q. You get the Griess test, don't you?

A. We get the Griess test, yes.

Q. That is a nitrite, isn't it?

A. I was telling you this morning that there may be other substances, besides nitrites, that produce that pink color.

Q. What other substances, beside nitrites, produce that pink color?

A. Substances that are formed by the direct union of N_2O_3 with a terpene.

Q. What is that substance?

A. That may be called a nitrosite.

Q. A nitrosite? A. A nitrosite.

Q. Giving the nitrite reaction? A nitrosite, giving the nitrite reaction? A. Well, I have never seen it—

Q. (Interrupting) Is there any nitrosite test?

A. What is it?

Q. Is there a nitrosite test?

A. Nitrosites will respond to the Griess reagent.

Q. What is the chemical formula for the thing that happens in the coloring matter of flour, or the chemical reaction?

A. To the best of our knowledge, there is a direct union of a terpene, which we have assumed, for this case to be— for this—our statement, to be—

Q. (Interrupting) A terpene?

A. Terpene, of the formula $C_{10}H_{16}$. Unites directly with the N_2O_3 , to form the compound which we call nitrosite.

Q. That is what? A. A nitrosite.

Q. So, then, this substance, not heretofore known as a terpene, you call a terpene?

A. We are making new discoveries along that line.

Q. Yes, and you name that a terpene?

A. There is no other name for it in chemistry, that I know.

Q. And the substance heretofore known as a nitrite, you name a nitrosite?

A. May I state, here, Mr. Butler, that we are conducting our experiments along these lines, and we reserve the right of scientists, in a year's time to preserve our experiments and publish our results in a scientific journal.

Q. We cannot delay the trial for that.

A. No, we cannot delay the trial for that, but that is through courtesy among scientists. I wished to bring that out, so that the scientists present will understand our attitude in the matter.

Q. In other words, you are not ready, as scientists, to lay down to the chemical world, these propositions that you have just given us?

A. I am ready to lay down the propositions, so far as we have gone, but not to picture out through the molecule, as it may exist there.

Q. In other words, you are not willing to label your discovery, a terpene, and label the other reaction a nitrosite reaction?

A. I think we have gone far enough we can label it a terpene, as compared with all others that behave in the same way.

Redirect Examination

By Mr. Elliott:

Q. There were two matters which I overlooked asking, Professor Teller, and I did not discover them until Mr. Butler began his examination. I want to ask them from you at this time. Have you ever given bread made from bleached flour, and giving this nitrite reaction, to a person, and then ascertained what became, or rather ascertained if there was
1980 a disappearance of that nitrite reacting material from the stomach of the person? A. I have.

Q. Will you please tell us what that experiment was, and the result of it?

A. Bread containing nitrites made from bleached flour—bread made from bleached flour, and containing some nitrites, were eaten by a young person under my observation, and I was present where a physician—not myself, except that I helped to work the stomach pump,—pumped out the gastric juice, at the end of one hour's time and applied the Griess test. I applied the Griess test, to the material which was obtained.

Q. With what result?

A. With the result of no pink color appearing.

By Mr. Butler:

Q. How long in the stomach? A. One hour.

By Mr. Elliott:

Q. Did you ascertain the amount of nitrite reacting substance in the bread?

A. That was one made especially. I think it contained about three-tenths of a part per million.

Q. Three-tenths of one part per million?

A. Yes, using the shortest fermentation possible.

Q. Have you made any examination of the flour that was seized in this case, to ascertain the presence or absence of free nitric acid?

A. I have made tests—other tests for free mineral acids, and obtained none.

Q. I will ask you if, in your judgment, it is possible for free nitric acid to be present in flour bleached by this Alsop process?

A. It is not possible for it to be present, as free nitrous acid, or nitric acid.

Q. Now, I will ask you to assume, Professor Teller, that, when the flour is bleached by this Alsop process, that the gaseous medium employed, when brought in contact with the flour, splits up into equal parts of nitrous acid and nitric acid. Just assume that. Now, under that assumption, I will ask

you if in your judgment any free nitric acid could remain in the flour.

1981 A. I will answer that by an experiment which I made on bread.

Mr. Butler: I will object to it being answered in that way.

By Mr. Elliott:

Q. Just answer the question, first. A. Sir?

Q. Assuming that.

A. In my opinion it could not. I see the question.

Q. How did you demonstrate that?

A. Demonstrated it by making bread, containing nitrous and nitric acids, and found no increased acidity in the bread, over what was normally present in a similar bread made from unbleached, or flour which contained no nitrous or nitric acid.

Recross Examination

By Mr. Butler:

Q. You say, on this experiment, you took bread containing nitrites?

A. Containing this material that we inadvertently speak of as nitrites. I guess you got me on that point, because I don't mean it, at all.

Q. You really mean a nitrosite?

A. I really mean the one we have been calling the nitrosite.

Q. You really mean the nitrosite? You resented my use of the word "nitrite" since lunch, I believe.

[Q.] We understand ourselves, I believe.

Q. If you put some hydrocyanic acid in food, and have somebody eat that food, and then pump out the stomach, do you think you would get the hydrocyanic acid back, if it had been in the stomach for two minutes?

A. I cannot say how long it might be there.

Q. Most all poisons would get off into the blood very quickly, wouldn't they?

A. That would depend on circumstances.

Q. Depend on the poisons, would it?

A. Depend on how soluble they were.

Q. Now, do you suppose that this nitrosite terpene
1982 would get off in the blood pretty quick?

A. I don't know how long it would take them. I know the saliva contains nitrites, and that there was none of that, even, there, when we pumped it out.

Q. So, you don't know how quickly it strikes into the blood.

A. No, we could not tell that.

Q. Nor what it does when it strikes the blood?

A. We would have to carry on an innumerable number of experiments to show how quickly it would get into the blood.

Q. It gets in very quickly?

A. I doubt it, because it takes some little time to dissolve it out, and some little time for it to diffuse.

Q. A drop of prussic acid on one's tongue will kill a man quicker than a poniard through the heart, won't it?

A. It is very quick, in that case.

Q. Some of these poisons act quickly, don't they?

A. Although it is present in some drinks.

Q. Probably a drop of concentrated nicotine on the tongue of a dog, will kill it quicker than if he was shot?

A. Might kill him very quick.

Q. You don't think you would pump very much of that out of his stomach, do you? A. I would not try it.

Witness Excused.

Mrs. P. L. Williams, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Scarritt:

Q. You never were on the witness stand before, were you, Mrs. Williams? A. No, sir.

Q. Where do you live, Mrs. Williams?

A. In Kansas City, Missouri.

Q. How long have you lived here?

A. Fifteen years.

Q. What is your business? A. Restaurant.

Q. Do you own and run a restaurant, here, in the New York Life building? A. Yes.

Q. How long have you been running that restaurant?

A. I have been in the New York Life building over eight years, and I was in business at 518 Delaware, too.

Q. You have been in the New York Life building restaurant, there, for eight years?

A. Over eight. We are in our ninth year.

Q. And how long on Delaware street, before that time?

A. Between three and four years.

Q. What was your occupation before that time?

A. Working in a restaurant, before that time.

Q. How long have you worked in the restaurant business, during your life?

A. About twenty years.

Q. From the time you were a little girl?

A. Yes, sir.

Q. Now, how many people do you feed down there at the New York Life building, at a meal?

A. We will average eleven hundred.

Q. Eleven hundred? A. Yes, sir,

Q. Eleven Hundred? A. Yes, sir.

Q. Noon meal?

A. Yes, sir. That is counting all our meals. Some days, of course, we don't run that, and other days we run over, and it will average eleven hundred, the year round.

Q. Eleven hundred a day, the year around?

A. Yes, sir.

Q. Are those customers of yours, or the general public, men from the offices, clerks, and merchants?

A. Yes, sir.

Q. Lawyers, doctors, and all sorts of people?

A. Yes, sir.

Q. Ladies and children, are they?

A. Yes, sir. Of course, we do not have many children.

Q. You have a great many ladies, have you? A. Yes.

Q. And young girls? A. Yes.

Q. People from the offices? A. Yes.

Q. Now, have you had any experience in making bread?

1984 A. I always made all my own until the last year or so, and I do, now, sometimes, if I am short of help, I will go in and make it.

Q. But, up to within the last year, you have done all of your own cooking, haven't you?

A. The last year or two. It has been about two years since I quit making bread, altogether.

Q. Your place, down there, is very popular on account of the bread you make, isn't it?

A. We always have good bread.

Q. Have you used bleached flour in making your bread?

A. Yes.

Q. From what mill or mills?

A. I can tell you the name of the flours, but I don't know what mills they are from. The bleached flour we are using now is the Southwest Milling Company.

Q. That is the "Aristos" flour?

A. Yes. We are using that, and have used it for 'most three years.

Q. And have used it for 'most three years?

A. Yes.

Q. And did you ever use the Bulte flour,—Bulte mills?

A. Yes, I have used it.

Q. And did you ever use any other flour?

A. I have used the Mosier flour, for two or three years.

Mr. Lyons: Who is that?

Mr. Scarritt: That is Mosier, of Great Bend, Kansas.

Q. Now, just tell the jury, Mrs. Williams, in your own way, whether or not there is any difference in the bread making

qualities of the bleached flour that you have used, from that of the unbleached flour.

A. The bleached flour makes the best bread.

Q. The bleached flour makes the best bread?

A. Yes.

Q. Did you find that true, in using the "Aristos" flour?

A. Yes, because, if we get new flour, and it is not bleached, it does not make as good bread as it does if it is bleached.

Q. Is it the same, or better, in quality and strength, as the unbleached flour?

A. Well, it makes lighter bread.

Q. Makes lighter bread?

A. And it makes it whiter.

Q. Makes whiter bread? Is it the same in volume and loaf? A. Yes.

1985 Q. Does it dough as well?

A. Doughs better, and it is better to handle. Any one can tell, when flour is new, that is used to mixing dough, whether it is bleached, if it is new.

Q. If I understand you, the new flour, bleached, is better than the new flour unbleached.

A. Oh, yes, much better.

Mr. Butler: I will object to that as leading.

Mr. Scarritt: I understand, I was just summing it up.

Mr. Butler: Yes, I understand you just wanted to tell it, yourself.

Mr. Scarritt: Yes, to see that I understood it.

Q. Now, in reference to unbleached flour, you may state whether or not it has better bread making qualities than the bleached flour.

Mr. Butler: I object to that. The witness has not shown herself competent to testify generally.

The Court: She may answer it.

By Mr. Scarritt:

Q. Whether any bleached flour has better bread making qualities than the same flour, unbleached. A. Yes.

Q. Did you make any bread out of the flour that was seized in this case, at my request? A. Yes, sir.

Q. (Handing a loaf of bread to the witness) Is that the loaf of bread you made out of the seized flour?

A. Yes, sir.

Q. When did you make that?

A. This morning.

Exhibit referred to was then marked by the reporter "Claimants' Exhibit 265".

Q. Did you make that in just the ordinary way that you make all your bread? A. Yes, sir.

Q. Put anything more or less in it, than you do your ordinary bread?

A. Nothing more, at all.

Q. Just what you use there in the restaurant?

A. Yes, sir.

Q. Did you make any rolls out of the flour?

A. I did. (referring to Exhibit 265) Shall I cut it?

Q. Yes. A. (Witness does so.)

1986 Q. Are these the rolls that I hold in my hand, that you made out of the Lexington bleached flour, the flour that was seized in this case? A. They are.

(Exhibit referred to marked by the reporter "Exhibit 266".)

Q. When did you make these? A. This morning.

Q. Now, did you make any rolls out of the bleached "Aristos" flour, that you had? A. Yes, sir.

Q. Are these the rolls you made out of the bleached "Aristos" flour? A. Yes, sir.

Exhibit referred to was then marked by the [by the] reporter "Claimants' Exhibit 267".

Q. Did you ever have any complaint in your restaurant down there about bread made out of the bleached flour?

Mr. Butler: I think we will object to that as immaterial.

The Court: Sustained.

No cross-examination.

Witness excused.

Herbert W. Emerson, called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. State your full name. A. Herbert W. Emerson.

Q. Your residence? A. Lawrence, Kansas.

Q. What is your profession?

A. I teach physiological chemistry at the University of Kansas.

Q. Will you please state your qualifications, Professor Emerson?

A. I graduated from the University of Michigan in 1901, and again in 1902. I did post-graduate work there, in 1903,

and held the Park-Davis scholarship. In the fall of 1987 1903, I came to the University of Kansas, as instructor in physiological chemistry. In 1905 as assistant professor of physiological chemistry, and, since 1907 have had charge of the physiological chemistry at the University of Kansas.

Q. Do you belong to any of these learned societies we have heard about?

A. I belong to the American Medical Association, American Pharmaceutical Association, Kansas Academy of Science, American Association for the Advancement of Science.

Q. Now, what is physiological chemistry?

A. Physiological chemistry is the study of the animal body, and the normal changes taking place during metabolism.

Q. Now, you might explain what metabolism means.

A. Well, metabolism is the changes which take place in the breaking down of foods, and the building up of the body—the normal changes of life.

Q. Have you done any work on bleached flour?

A. Yes, sir.

Q. What is the nature of the work you have done, Professor?

A. I have carried out a number of experiments on the digestibility of bleached flour.

Q. Now, will you please state what these experiments were?

A. I took two per cent solutions of bleached and unbleached flours, and first ran experiments with the pancreatic digestion, by adding to one hundred c.c. of the two per cent solutions, ten c.c. of pancreatic solution, containing 0.3 grammes of pancreatin. I watched the course of digestion, by taking out from this digestion mixture, which was kept about body temperature by means of an asphalt thermostat, at intervals of about ten minutes, two c.c. of the digestion solution, and adding it to Nessler's tubes, containing fifty c.c. of water and one c.c. of N/10 iodine. Starch, in the presence of iodine, gives a blue color. As the digestion proceeds, and [dextaerine] is formed, you get a reddish color, and, as that starch is further hydrolized into sugars, the color disappears. I watched the rate of digestion, by comparing the colors at different intervals, and could distinguish no difference in the rate of digestion between the bleached and unbleached flours.

1988 Q. Now, what flour did you have in those experiments.

A. This was flour from the Larabee Mills.

Q. Did you ascertain the nitrite reacting content of that flour? A. Yes, sir.

Q. What was it?

A. The unbleached flour contained no nitrite reacting material. The bleached flour contained one part per million nitrite reacting material.

Q. I don't know if I asked you, but if I did, I will ask you again, as a result of that experiment, what is your opinion as to whether digestion of the bleached flour, or the bread from the bleached flour—which was it you used?

A. In these experiments I just described, it was all on bleached flour.

Q. On the flour, itself? A. Yes, sir.

Q. I will ask you, as a result of that experiment, did you observe any retardation of the digestion of the bleached flour, as compared with the unbleached?

A. No, sir. I determined no retardation in the digestion.

Q. Did you make any quantitative determinations as to the extent of digestion? A. Yes.

Q. What were they, and what were the results of those quantitative determinations? First, tell us what they were, and what the results were.

A. I carried on experiments similar—practically the same as these—just the same as these—for definite intervals of time, and then filtered the two solutions, and determined the sugar—I filtered the two solutions, and made up the filtrate, to the same volume, one hundred c.c.—I determined the sugar in an aliquot portion of the filtrate.

Q. What did that disclose?

A. The amount of sugars in the two were the same. That is, there was more sugar at one time, in the unbleached, and, on other experiments, slightly more in the bleached, so that I could not determine from these quantitative experiments any difference in the rate of hydrolization.

Q. By hydrolization—does that mean the conversion of the starch to sugar? A. Yes.

Q. Did you make any other quantitative determinations?

A. Yes. Filtering the solutions—I filtered them through dry washed—through washed, dried and weighed filter
1989 papers, and weighed the residue—dried and weighed the residue.

Q. What was the result of that test?

A. The residues were the same—practically—were the same.

Q. Have you carried on any experiments to determine the effect of digestion upon these nitrite reacting material?

A. Yes.

Q. What were they?

A. The experiments were, first, in pepsin, and we found that the nitrite reacting material disappeared in from one-half to about one hour.

Q. Just tell us a little more in detail, now, Professor, what you did,—what you used.

A. Well, I used the bleached flour, and added to it ten c. c. of pepsin solution, containing—that solution contained 0.5 per cent pepsin, and then digesting this, at body temperature, testing for nitrite reacting material every fifteen minutes. We found it disappeared in from thirty minutes to an hour and a half, and, in some cases, it disappeared in thirty minutes, and others it took longer.

Q. Did you make any with pancreatin? A. Yes, sir.

Q. Tell us about these.

A. The digestion experiments with pancreatin were very different in character. Sometimes—the first experiment with the pancreatin—in the pancreatic digestion, the nitrite reacting material disappeared very rapidly. Subsequent experiments, it disappeared very slowly, if at all.

Q. Now, I will ask you what deductions do you draw from these experiments?

A. That some way in the processes of digestion, the nitrite reacting material disappears.

Q. Have you made any experiments to determine the presence or absence of inorganic nitrites in flour? A. Yes, sir.

Q. I meant by flour, flour that had been treated by the process. Please detail these experiments. Tell us what they were.

A. I took bleached flour solution, twenty grammes, added fifty c. c. of water, allowed it to stand for one hour, tested it, by adding potassium iodide, starch paste solution, and
1990 five c. c. of N/10 acetic acid. I could get no test, for nitrites. I repeated the experiment, using, in place of N/10 acetic acid, N/10 hydrochloric acid, and I got a positive reaction.

By Mr. Butler:

Q. Got the reaction for what?

A. Liberation of iodine for nitrite.

By Mr. Butler:

Q. The nitrite reaction?

A. Yes, sir. Liberating iodine, and coloring the starch paste blue. I then repeated the experiment—I then tried an experiment to determine the delicacy of potassium iodide, starch paste, and sodium nitrite. I found it to react—with N/10 acetic acid—and found it to react with one part in fifty million. That is, one part of nitrite, in dilutions of fifty million. part sodium nitrite dilutions of fifty million.

Q. Then, let me ask you this—

A. (Interrupting) Well,—

Q. (Interrupting) Go ahead, if you have not finished.

A. Perhaps that leaves it rather indefinite. My conclusion from this would be that there were no inorganic nitrite reacting materials in the flour.

Q. Is that test that you employed, one which would have disclosed the presence of an inorganic nitrite, if it had been in the flour? A. Yes, sir.

Q. Now, would these tests also show the presence of free nitrous acid? A. Yes, sir.

Q. If it existed in flour bleached by this process?

A. Yes, sir.

Q. And what is your statement as to the presence of free nitrous acid?

A. There could be no free nitrous acid in the flour which I was working with.

Q. Now, as the result of these experiments, I will ask you what your conclusion is, as to the presence or absence of inorganic nitrites, or free nitrous acid, in flour bleached by the Alsop process.

A. That there were no free nitrous acids or inorganic nitrites in the flour which I analyzed.

1991 Q. Now, have you performed any experiments to determine if there is any free nitric acid present in flour bleached by the Alsop process? A. Yes, sir.

Q. Please tell us what these experiments were, and with what results.

A. The experiments consisted of adding one per cent nitric acid to flour contained in a mortar, and titrating and adding Troepper's reagent, dimethyl-amido-azo-benzol, which gives a red color with inorganic acids, and I could get no free acids, until I had added about one part of acid to two hundred parts of flour—one to two hundred.

Q. How was it that you could get no—

A. (Interrupting) I could get no positive reaction. That is, no red color, for free nitric acid, until I had added one part of acid to two hundred parts of flour.

Q. Now, let me see if I understand that. Did you try this reaction with the bleached flour?

A. Yes, sir. This was with the bleached flour.

Q. And did you state the result of that?

A. No, I did not. I could get no reaction for nitrous acid, with Troepper's reagent.

Q. Then you kept on adding nitric acid. Is that it?

A. Yes.

Q. Until you added it to the proportion of one to two hundred of the flour? A. Yes, sir.

Q. And in that proportion, you say you did get the reaction?

A. Yes, sir, did get the positive reaction.

Q. Professor, have you conducted any experiments to determine the relative digestibility of flour made from bleached and unbleached flour? A. Yes, sir.

Q. Please tell us what these were.

A. These experiments consisted in grinding the bread up, and breaking it, getting it into small pieces, and then the digestion experiments, as I described previously, the experiments were just the same.

Q. That is, you repeated the same experiments with the bread, ground up, as you did with the flour?

1992 A. Yes, sir. The pancreatic juice, and also with saliva.

Q. Have you noticed any foreign odor to flour bleached by the Alsup process? A. No, sir.

Q. Have you examined breads, I mean, made from bleached and unbleached flours, to see if there was any difference in the taste and smell of these breads? A. Yes, sir.

Q. What is your opinion in that regard?

A. I cannot distinguish any difference in the taste, odor or appearance except in the color, between bread made from the two flours.

Q. Have you made any experiments to ascertain what effect nitrites taken internally, have on the blood, as to the formation of met-hemoglobin?

A. Yes, sir. I have taken, in three-grain doses, at one hour's interval, as much as nine grains of sodium nitrite.

By Mr. Scarritt:

Q. Who has done it? A. I have.

By Mr. Scarritt:

Q. Oh, you have, yourself?

A. Yes, sir. And tested the blood for met-hemoglobin, and could find none.

By Mr. Elliott:

Q. What is the test that you made for the presence or absence of met-hemoglobin?

A. I took some blood from my finger, with the Thoma-Zeiss hemacytometer, mixed with physiological salt solution, and examined it by the spectroscope.

Q. Did you take this—what was it you took—sodium nitrite? A. Yes, sir.

Q. Did you take this more than one day?

A. Yes, sir, I took it on two days.

Q. In succession?

A. Yes, sir. In the mornings of both days.

Q. How much did you take the first day?

A. I took nine grains each day.

- Q. Nine grains on each of two days? A. Yes, sir.
 Q. Eighteen grains in the two days? A. Yes, sir.
 1993 Q. I will ask you if you felt any ill effects, or otherwise, from the taking of this amount of nitrite.
 A. No, sir. I could not observe any effects.

Cross-Examination

By Mr. Butler:

Q. From your last experiment, Doctor, would you have us understand that it is your opinion that nitrite of sodium will not produce met-hemoglobin in the blood?

A. In any quantities, do you mean?

Q. Well, leave my question as it stands.

A. And do you mean taken into the body, or outside, in the test tube?

Q. I mean taking it into the stomach of human beings.

A. No, I know that nitrites will produce met-hemoglobin. I do not know in how large quantities it must be taken to produce met-hemoglobin.

Q. You know it is the learning of the medical profession, ever since the salt, nitrite of sodium, was known, that it will and does, by direct and immediate chemical action, change the hemoglobin into met-hemoglobin, when taken by the stomach, don't you?

A. I don't know of any cases of met-hemoglobin. I know that—

Mr. Butler: (Interrupting) I move to strike out the answer as not responsive.

The Court: Yes, that is not an answer.

By Mr. Butler:

Q. I am asking for the learning of your profession upon that subject, and the medical profession.

A. Well, I am not sure that I can answer you accurately. I know that—

Q. (Interrupting) I know you are not a doctor?

A. No, sir.

Q. But, is it not your understanding and is it not laid down by Cushney, and everybody else who has ever written upon the subject, that nitrite of sodium, and other nitrites, do change the hemoglobin into met-hemoglobin?

A. I believe that is the case, yes.

Q. And when the hemoglobin is changed into the met-hemoglobin, its power of carrying oxygen from the lungs to the tissue is destroyed? A. Yes, sir.

1994 Q. So that the effect of that particular nitrite, at least, is, to the extent that it changes the blood, injurious, in that it deprives the blood of its most important function? Isn't that true, Doctor?

A. I don't know that small quantities—

Q. (Interrupting) To the extent, I said.

A. To the extent?

Q. Yes. A. That met-hemoglobin is formed?

Q. Yes. A. Yes, sir.

Q. To the extent? A. Yes, sir.

Q. So that, as a physiological chemist, I may say that if a single red corpuscle of my blood be so changed that the hemoglobin therein be made met-hemoglobin, the function of that corpuscle is destroyed? A. Yes, sir.

Q. My blood is robbed to that extent? A. Yes, sir.

Q. My blood is poisoned to that extent?

A. I am not a toxicologist.

Q. Well, it is a foreign substance in the blood stream, isn't it? A. Met-hemoglobin is, yes, sir.

Q. Objectionable, and injurious, if in sufficient quantities— if in sufficient quantities?

A. I should say that I do not know that it is injurious.

Q. Why, it will strangle a person by suffocation, give them cyanosis, and the body, at post mortem, will be exactly as if the person had been smothered between two feather ticks, won't it, or choked to death?

A. If all the blood is used up in the met-hemoglobin.

Q. If done to death, I say. A. Yes.

Q. And when it has done them to death, it is simply changing corpuscle after corpuscle, until the whole blood stream is ruined, isn't it, until the hemoglobin therein is changed to met-hemoglobin? A. Until sufficient is changed to cause death.

Q. How is that?

A. Until sufficient is changed to cause death.

Q. Yes, until sufficient is changed to kill? That is the truth, isn't it? A. Yes.

Q. Now, as a physiological chemist, you will say that anything added to our food, whether it be a nitrite, a terpene, or poison, that strikes down our blood and deprives it of power to carry oxygen to the tissue, is wrong, and injurious to the food, won't you,—injurious to health?

Mr. Scarritt: We object to that as invading the province of the jury, asking the witness for a conclusion that invades the province of the jury.

The Court: He may answer.

Mr. Scarritt: We save an exception.

The Witness: Will you please read that question?

(Last question read.)

By Mr. Butler:

Q. And also injurious to health—it injures the food, and injurious to health, if it destroys our blood, will it not?

Mr. Scarritt: Same objection.

A. If the assumption is correct,—that is, if it injures the food.

By Mr. Butler:

Q. If it injures the blood, you mean?

A. And destroys health, it should not be added.

Q. Oh, no. A. I am not sure I understand the question.

Q. If it injures the blood, so that it destroys its power to carry oxygen, it injures health, does it not?

Mr. Scarritt: Same objection.

The Court: He may answer.

Mr. Scarritt: We except.

Witness: Will you please read the question?

(Last question read by the reporter.)

A. I will answer that yes, and then I would like to explain. If it was added in sufficient quantities, that is.

By Mr. Butler:

Q. Yes. A. Yes, sir, that is true.

Q. It might be in so minute a quantity—

A. (Interrupting) As not to effect.

1996 Q. (Continuing) —as not to prevent any observable effect, might it not?

A. Yes, sir, and, in my opinion, it would not produce any effect.

Q. Will you say that, if one molecule of the oxygen carrying portion of my blood be destroyed, that I am not, *pro tanto*, thereby injured?

Mr. Scarritt: Same objection.

The Court: He may answer.

Mr. Scarritt: We except.

A. Yes, sir. But, I don't believe—

By Mr. Butler:

Q. (Interrupting) Wait a moment. You will say I am not injured, or that I am? A. No, sir. I will say you are.

Mr. Scarritt: Let him explain.

By Mr. Butler:

Q. Yes, sir.

A. But I do not believe that small quantities of sodium nitrite gets into the blood stream, at all.

Mr. Butler: I move to strike out what he thinks about sodium nitrite.

The Court: That may be stricken out.

Mr. Scarritt: We except.

By Mr. Butler:

Q. The Larabee flour is known to you, is it not, to be the best milled flour in Kansas?

A. I don't know very much about flour.

Q. It is known to you to be the most lightly bleached flour in Kansas, is it not?

A. No, I haven't—I don't know. I don't know about the flours of Kansas, at all.

Q. Did you use flour that was milled the same day?

A. I used flours, that, by analysis, indicated them to be the same.

Mr. Butler: I move to strike that out.

The Court: Yes, sir, that is not an answer.

By Mr. Butler:

Q. Do you know whether the unbleached flour was free from nitrite reacting material? A. Yes, sir.

Q. As far as you know, it was a new flour, just milled?

A. I don't know anything about that.

Q. Well, now, if it was a new flour, just milled, when you compared it with the bleached flour, you were comparing what has been called a "artificially aged" flour with a brand new flour, weren't you?

A. Well, if that is true.

Q. Yes, if that is true. A. Yes, if that is true.

Q. Now, you know, do you not, that natural aging of good, wholesome flour, such as Larabee makes when he is doing his best—I am not sure he always does his best—you know that that is improved with aging, don't you, and becomes blander, and more nutritious, more gracious, with better flavor, and digests better?

A. No. I would rather say I did not know, because I don't know about these things.

Q. Well, is it not within your knowledge that natural aging improves digestibility of flour?

A. Yes. That is my impression, but I could not prove it.

Q. So that, if you take a fresh flour, and then bleach it, and they are just alike, that demonstrates, does it not, that

the bleaching does not improve digestibility of the flour, if you get the same results? A. Yes, sir.

Q. Now, I only want to refer to one of your experiments, and that was the experiment which had to do with the digestibility of the nitrite reacting material. Had you learned to call that by the name of "nitrosite terpene" or "terpene", or "terpenic nitorsite"?

A. No, sir.

Q. You never heard it called that name?

A. I have never called it as such. I have heard of it.

Q. Are there bacteria, which will nitrify nitrite, and change them into nitrates? A. Yes, sir.

Q. Did you chloroform the bacteria?

A. No, sir, but I ran the tests, which are made up the same.

Q. Yes, but the bacteria were working in both?

A. Yes, sir. The one case, just with the flour in water, the other, with the pepsin in water, and the other with 1998 with the pancreatin in water, and it disappeared most readily from that with the pepsin in the water.

Q. How is that?

A. The nitrites disappeared most readily—

Q. (Interrupting) Well, I know, but the bacteria were at work, were they not?

A. All of them, I presume.

Q. The nitrifying bacteria.

A. I presume they were working in them, all just alike.

Q. Now, nitrifying bacteria are well known to agriculturists, are they not? A. Yes, sir.

Q. They are the things which change the nitrites in the soil into nitrates, that plants may live? A. Yes, sir.

Q. On the nitrates? A. Yes, sir.

Q. And the nitrifying bacteria are being produced for that very purpose, are they not?

A. I understand so.

Q. In the agricultural department of the University of Kansas?

A. Yes, sir. I understand so.

Q. Now, this digestion test took place in an open beaker?

A. No, sir, in a closed, Erlenmeyer flask.

Q. Was it exposed to the atmospheric air?

A. That was a one hundred c.c. Erlenmeyer flask. They hold a little more than one hundred c.c., so, there was a little air over it.

Q. Did you have it stoppered tight? A. Yes, sir.

Q. Did not blow out the stopper? A. No.

Q. No gases formed?

A. Not sufficient to blow out the stopper.

Q. What did you stopper it with?

A. With a cork stopper.

Q. Well, that, of course, is not hermetically sealed, in chemistry? A. No, sir.

Q. You know that these nitrates have great avidity for oxygen, and then change to nitrites, don't they?

A. Yes, sir.

Q. That is, take nitrite of sodium?

A. Well not so much. I don't know about that. Sodium nitrites, I think changes slowly. I don't know how rapidly.

Q. And, after they have been changed by oxidation, to nitrates, you could eat a whole handful, couldn't you?

A. I don't know.

1999 Q. But nine grains did not even produce any action, even of a medical character, upon you?

A. Not that I could determine.

Q. Seemed just as harmless as would so much corn meal?

A. I think so.

Q. Not nearly so harmful as so much flour, Doctor?

A. Oh, I think they would both be practically harmless. I could not say. I did not notice any effect.

Redirect Examination

By Mr. Elliott:

Q. Is the flour that you used in your digestion work the same flour Professor Sayer used, do you know?

A. Yes, sir.

Recross Examination

By Mr. Butler:

Q. By the way, when did you make these acid tests, to find free nitric acid, and free nitrous acid?

A. I think I made these experiments a week ago today.

Q. That was since Dr. Hulett testified here, wasn't it?

A. I don't know when Dr. Hulett testified.

Q. You heard of his testimony, here, didn't you, before you made the tests?

A. No. I am not sure. I heard about Dr. Hulett's testimony sometime in the last week. I am not sure whether I heard it before.

Q. Now, I think I will ask you one or two questions that I like to have the opinion of scientific men on, generally, especially from the University of Kansas. Now, without quibbling about quantities very much, some substances are, by nature, popularly know to be poisonous substances, are they not?

A. That is my impression, yes, sir.

Q. And others are popularly known to be foods?

A. Some.

Q. And harmless? And, ordinarily, it is not good English to call wholesome food poison? A. No.

Q. Is it, Professor? A. Not in ordinary quantity.

2000 Q. Not out of the laboratory? Now, we had Professor Sayer, here you and he, I believe, are with the same institution, and are associated in your work, are you not?

A. Yes, sir.

Q. Same department? A. Yes, sir.

Q. Professor Sayer tells us that the oxides of nitrogen, N_2O_3 , the trioxide, NO_2 , the peroxide, and HNO_2 , the nitrous acid, and HNO_3 , the nitric acid, belong to the poisonous group, that were, generally speaking, poisonous substances, by nature. Are you of that same opinion?

A. Yes, I think I am.

Q. Now, Professor, without getting into the fine distinctions about quantities, and so forth, let me see if I can get your opinion on this. May food, like flour, or bread, or pancakes, or dumplings, or gravy, or crackers, or biscuits—any of the food stuffs made from flour—from wheat flour—be rendered injurious to health by the addition thereto of, or the treatment thereof with nitrogen peroxide gas, nitrogen trioxide, nitrous acid, or nitric acid?

Mr. Scarritt: We object to that as invading the province of the jury, and calling for a wrongful conclusion of the witness, because the witness has not qualified.

The Court: He may answer.

By Mr. Butler:

Q. I am not dealing with quantities, now. I am trying to get at the nature of the substance.

A. Will you read the question, please?

(Last question read by the reporter)

A. I could not answer that, without taking into consideration the quantity.

Q. Well, in appropriate quantities, then, we will say, of each.

A. And what may I understand, please, by "appropriate"?

Q. Well, any reasonable quantity.

A. That is not any more definite, to me.

Q. Well, I will withdraw that question, and make a very simple one. A. All right.

Q. May food made from flour be rendered injurious to health by adding nitric acid thereto?

2001 Mr. Scarritt: Objected to for the same reason.

The Court: He may answer.

Mr. Scarritt: We except.

A. Any amount of nitric acid?

By Mr. Butler:

Q. Any amount, I don't care whether it is big or little. In other words, can I spoil food with nitric acid?

A. Oh, yes, sir.

Q. You're right I can. I can spoil it badly. So I may with nitrous acid? A. Yes, sir.

Q. So I may with NO₂ gas?

A. You may be able to spoil it, yes.

Q. And so I may with N₂O₃, whether it be gas or liquid?

A. Yes, sir, you are able to.

Q. Do you happen to know that it does not exist in a gaseous state as laid down by all chemists of the world?

A. Yes, sir, I understand that.

Q. You understand that it does not exist as a gas?

A. Yes.

Q. That is, the nitrogen trioxide—N₂O₃. You so understand it, do you not?

A. That is my impression. I don't know whether I am right about that or not. I don't know.

Q. Now, let us assume, for example, that five horse-power of electric current, from this flaming arc, will produce, in a year, seven thousand pounds of nitric acid, and a like amount of nitrous acid, and that the same are introduced into the flour product of a mill, which is two hundred barrels a day, and let us assume that, reducing that to a barrel, there would be one-tenth of one pound of nitrous acid, and one tenth of one pound of nitric acid added to each barrel of flour, while in a state of great agitation, so as to mix it up, well; now, that one-tenth of a pound would be about like this, which is marked "Exhibit 20"—being that much full of nitrous acid, and another one like it, full of nitric acid. I want to ask you whether or not you think those two acids would have any effect upon the flour.

Mr. Scarritt: We object to that, if Your Honor please, incompetent, irrelevant and immaterial, not being based upon the evidence in this case, and leaving out evidence that bears upon the subject, and introducing evidence, himself, that is not on the record.

The Court: He may answer.

A. One-tenth, as I understand it?

By Mr. Butler:

Q. Yes, it would be thirty cubic centimeters of nitrous acid, and the same amount of nitric acid, commingled with a

barrel of flour, and the question is, do you think it would have any effect upon the flour?

A. Yes, sir. It would have an effect.

Q. A good effect, or a bad effect?

A. I believe that it would aside—well, I would rather say that I am not competent to answer that.

By the Court:

Q. Sir? I did not hear you?

A. I am not competent to answer that.

By Mr. Butler:

Q. As a physiological chemist, you do not believe, in your heart, that the adding of three and one-half tons of nitric acid, and three and one-half tons of nitrous acid to the output of a mill, making flour at the rate of two hundred barrels a day—do you not think these acids would injure the flour made by the mill?

Mr. Scarritt: Same objection, if your Honor please.

The Court: He may answer.

Mr. Scarritt: We except.

A. Well, would these acids be all absorbed?

By Mr. Butler:

Q. Commingled with the flour, in a state of agitation. I think it would make poison in it, if you want to know my view of it—the worst kind of poison.

By the Court:

Q. Go on and answer it, Mr. Witness.

A. I would rather say I am not competent to answer that. I would like to figure it out.

2003 By Mr. Butler:

Q. Can you think of any quantity, then, that would be large enough if sixty-eight cubic centimeters of two acids, nitrous and nitric acid, would not injure a barrel of flour, if mixed with it, and commingled with it? Can you think of any quantity of poison, at all—

A. (Interrupting) I think if that was all absorbed, that it would be poisonous. I think it would be deleterious to health. I would rather state it that way.

Q. That it would injure health?

A. That quantity, all absorbed.

Q. And that it ought to be kept out of the flour, on account of the health of the people, wouldn't you say?

Mr. Scarritt: We object to that for the same reasons, if Your Honor [—], that it is more argumentation.

A. (No response.)

Mr. Butler: All right. I will withdraw the question, Doctor. We will not have any trouble about that at all. I will withdraw it.

Witness excused.

Penton Dales, being called as a witness on behalf of the claimants, being first duly sworn, was examined, and testified as follows:

By the Court:

Q. What is your name? A. Penton Dales.

Q. Where do you reside? A. Lincoln, Nebraska.

Direct Examination

By Mr. Elliott:

2004 Q. I believe you are not a doctor of medicine.

A. I am not a doctor of medicine, no, sir.

Q. I will ask you what is your profession, Dr. Dales?

A. I am a teacher of chemistry.

Q. Will you kindly state your qualifications?

A. I graduated with the degree B. S. C., at the University of Nebraska, '97. Had the scholarship there, for two years. Master's degree in '99. Scholarship in chemistry of Cornell, in '99-1900. Sage scholarship in chemistry, Cornell, 1900-1. Doctor of Philosophy, Cornell, 1901. Was Professor Dennison's private assistant, the work being largely analytical chemistry, from the fall of 1901 until February, 1903. February, 1903, I was given the research assistantship, and worked there at Cornell, and September, 1903, I was called to the University of Nebraska, as an assistant professor, and the work was analytical chemistry. At the present, I am professor of analytical chemistry and in charge of the department in the University of Nebraska.

Q. Have you done any work, as author, or editor, in connection with chemical subjects?

A. At the request of the Journal of the American Chemical Society, I prepared three extensive reviews, on analytical chemistry. I have written a number of papers on analytical subjects, and I am, at present, directing the research work of some graduate students, along analytical lines.

Q. Have you ever prepared any comprehensive publications dealing with recent conditions in analytical chemistry?

A. That was the three publications, at the request of the editor of the Journal of the American Chemical Society, was what I had in mind.

Q. Have you done any special work along the lines of agricultural chemistry? A. No, sir.

Q. Have you any special familiarity with bleached flour?

A. None, except that I have made a few purely analytical tests upon the flour.

Q. What tests, if any, have you made of the flour that was seized in this case?

A. I tested one sample of flour that was seized in this case, for free nitric acid.

2005 Q. For free nitric acid? A. Free nitric acid.

Q. What did you find as a result of your tests?

A. I found no free nitric acid in it.

Q. Are you positive that there was no free nitric acid in the flour?

A. I am positive that there was no free nitric acid in the sample of seized flour, nor in three other samples of bleached flour that I have tested.

By Mr. Butler:

Q. The three others were not of the seized?

A. No, sir. They were ordinary commercial products.

By Mr. Elliott:

Q. I understood Dr. Acree to testify, in answer to a question, which was, "Now, how did you demonstrate, if you did demonstrate, that the chemical action took place." And he said, "In the experiment with the nitric acid, corresponding to one hundred cubic centimeters of nitrogen peroxide per kilogram of flour, the temperature rose four and one-half degrees Fahrenheit. This is proof of the chemical reaction." The point is, I want to direct your attention to the rise in temperature, which he states is proof of the chemical reaction. I will ask you if you should spray unbleached flour with dilute nitric acid, and should obtain a rise in temperature, would you consider this proof of chemical action?

A. It is not proof of chemical action. It is evidence, but it is not proof.

Q. Why would you say that?

By Mr. Butler:

Q. It is evidence of it?

A. It is evidence of chemical action. It is not proof, nothing like it. Did you ask me why?

By Mr. Elliott:

Q. Why you would not consider this proof of chemical action.

A. A great many salts will dissolve in water, with a rise in temperature, and a great many—or, some salts will dissolve in water with a marked fall in temperature. Substances

like caustic potash, hydrochloric acid, and nitric acid, cause a marked rise in temperature, when they are diluted with water. That is the reason it is not proof. Those are not cases of chemical action.

Q. Have you made any spraying experiments, yourself?

A. I have, a few spraying experiments, that I would like to call to your attention, if I may look at this piece of paper, simply for the figures. Five hundred grammes of flour were sprayed. I sprayed five hundred grammes of flour with four cubic centimeters of water, three times in succession. I mean the same five hundred grammes of flour, sprayed that with four cubic centimeters of water, noted the rise in temperature; then, with four more cubic centimeters, and noted the rise in temperature, and then four more. In all I used twelve cubic centimeters of water sprayed into that flour. The initial temperature of that flour was 28.5 degrees Centigrade. After the first four cubic centimeters, it was twenty-nine and one-half, after the second four, it was thirty, and after the third four, it was 30.35 degrees Centigrade. That means that the twelve cubic centimeters of water gave it a rise in temperature of 1.85 degrees Centigrade, or 3.33 degrees Fahrenheit. Now, I tried five hundred grammes of bone-ash, in the same way, with water. Sprayed it with twelve cubic centimeters of water, in three separate amounts of four cubic centimeters. The initial temperature of the bone-ash was 29.8 degrees Centigrade. The rise on the first four cubic centimeters was 30.4. The rise on the second four cubic centimeters was to 30.6 and the rise, after the third four, was 30.85. That is, the total rise in temperature for the twelve cubic centimeters of water, in this case, was 1.05 degrees Centigrade, or 1.89 degrees Fahrenheit. Another case, five hundred grammes powdered charcoal were treated in the same way. The initial temperature was twenty-eight and one-half degrees, and the rises were to 28.6, to 30.1, and, the final four cubic centimeters did not increase that. After twelve cubic centimeters of water were added, the rise in temperature was 1.6 degrees Centigrade, or 2.88 degrees Fahrenheit. There, you have three, at least, cases of spraying with water, where the rise in temperature is certainly not because of the chemical action. It is not a case of chemical action, in the ordinary sense of the word.

Q. I understood Dr. Acree to testify as follows: "I took a sample of unbleached flour, and, as I say, sprayed the nitric acid into that concentration represented by one hundred cubic centimeters of nitrogen peroxide per kilogram of flour. That flour was bleached at once. I have the two samples, here, Mr. Butler." Now, I will ask you, have you sprayed any unbleached flour with dilute nitric acid? A. I have.

Q. Were you able to observe any bleaching effect?

A. I could not.

Q. I will ask you, do any of these flours which have been sprayed with dilute nitric acid, which you have sprayed with dilute nitric acid, I mean, show tests for free mineral acid?

A. They do not.

Q. What do you conclude from this experiment?

A. I conclude that the addition of nitric acid in the amount mentioned by Dr. Acree, and, for that matter, larger amounts than that, although there is a limit—larger amounts than that amount, will not show the presence of free mineral acids.

Q. Now, why not?

A. Because they will not respond. Samples that have been properly treated, and extracted, will not respond to the indicator, dimethyl-amido-azo-benzol, which is a test for the presence of free mineral acids, and nitric acid is one of these, and so is nitrous acid.

Q. Would the presence of the other substances, such as the phosphates, in flour, have anything to do with that question?

A. No, because—I say no, if you add enough nitric acid to convert all of your phosphates into nitrate, so that, on a test for free phosphoric acid, you would get your test, and that is what you would have to do to those things, to make them react for free mineral acids.

Q. But, in the amount that you have dealt with, it is your opinion is it, that no free mineral acids could exist in the flour?

A. I know there is none, if that test is trustworthy, and everybody considers that it is.

2008 Q. I also understood Dr. Acree to testify that there are, in the first place, acids formed by the action of this nitric acid on the flour, which generates more acids—that is, as I understood it. When you pour nitric acid on the flour, there are acids formed by this nitric acid, which generates more acids. Now, I will ask you, does spraying flour with a small amount of nitric acid, and allowing the mixture to stand, increase the acidity of the flour, if at all, sufficiently to enable it to be measured?

A. I may say that, within the limit of experimental error, it does not.

Q. Have you any figures on that?

A. I have some figures. I would like to put them on the board, back here. I do not suppose Mr. Butler can spare these, can he?

Mr. Butler: It took me so long, Doctor, to put that stuff on the board, I would hate to have it taken off.

A. (Continuing) I will try to read them slowly enough so you can get the hang of it, then. I took fifty grammes of unbleached and unsprayed flour. I extracted this, with five hundred grammes of cold water. Filtered that. Titrated one hundred cubic centimeters of the filtrate with tenth normal caustic soda, using phenol pthaline. Now, these one hundred cubic centimeters of the filtrate required, to neutralize the acids, the first time, one cubic centimeter of the tenth normal caustic soda. The second time, I tried it—that is, I ran another one hundred cubic centimeters. The second time it required .9 cubic centimeters of the caustic soda. Now, I took five hundred grammes of the unbleached flour, and sprayed that with four cubic centimeters of tenth normal nitric acid, which is the amount, approximately, comparable to your supposed one hundred cubic centimeters of nitrogen peroxide. Then, I took fifty grammes of that sprayed flour, extracted it, with five hundred cubic centimeters of water. One hundred cubic centimeters of this filtrate. Took fifty grammes of this sprayed flour extract, with fifty cubic centimeters of water; one hundred cubic centimeters of that required .9 cubic centimeters to neutralize the acids. Now, I let that flour 2009 that five hundred grammes which had been sprayed with nitric acid,—stand for two days. And, in two days I took another fifty grammes extracted with fifty cubic centimeters of water, filtered, and titrated one hundred cubic centimeters of that, twice. Then, I got one cubic centimeter and .95 cubic centimeters. Now, the average of my unsprayed and untreated flour was .95 cubic centimeters of caustic soda. The average on the sprayed flour, which stood for two days, was .975 of a cubic centimeter of tenth normal caustic soda. The difference between these two is twenty-five thousandths of a cubic centimeter, which is half a drop of [tense] normal sodium hydroxide. And you will find there are very few analytical chemists that will swear to a result that—

By Mr. Butler:

Q. (Interrupting) That is a small increase?

A. Is a very small increase, and one you cannot depend on. It might go down, just as well as it might go up. The point I want to make is this, that twenty-five thousandths of a cubic centimeter of tenth normal caustic soda is an amount that is within the limit of experimental error. And so it is.

[A.] Now, we have got the details of this experiment, and I want to see if I can get you, for the better understanding of these gentlemen to just put it in popular language. What it was you did.

A. The point is just this: The flour contains, among other things, certain organic gases. These organic acids may be neutralized by caustic soda. I use an indicator like phenol

pthaline, to tell you when the neutralization is complete. Now, the point in that experiment that I tried was, whether the addition of a small amount of nitric acid, and letting it stand for a couple of days, increases that acidity. Now, it does not increase that acidity.

By Mr. Scarritt:

Q. What kind of flour are you talking about?

A. I am talking about an unbleached flour, sprayed—one that I sprayed myself. It does not increase that acidity, certainly not beyond the limit of experimental error. That much I know about it.

2010 Q. I understood Dr. Acree to testify, also, to this effect: "it is a general truth in chemistry that, if you bring together two kinds of compounds which react with each other, they are going to react." I will ask you, is it a general truth in chemistry, that, if you bring together two substances which react with each other, they are going to react?

A. It is a general truth which needs, however, the very important modification of under the proper conditions. I can give you a good many examples of substances which are going to react under proper conditions, which do not react at all under ordinary conditions.

Q. I will get you to give us some of these.

Mr. Butler: I object to that as irrelevant and immaterial. Of course, everybody knows that chemical action will take place, and the conditions have something to do with it.

The Court: I will let him answer.

A. Such a case is the mixture of marsh gas and air in mines, which does not act unless some miner brings a fire along. Then, hydrogen and oxygen can be allowed to stand around indefinitely. They do not act, unless you bring a spark of fire, or a catalytic agent comes in contact with it. There are some cases, the reaction will act one way, while, under certain conditions, the reaction will be in the opposite direction.

Q. Now, can you give us an example of some reaction which will act one way, under one condition, and another, under other conditions?

A. There are two very simple ones. You take mercury, and heat it in oxygen, at a moderate temperature, and you get mercuric oxide, and you take your mercuric oxide and heat it a little hotter, and it goes back into mercury and oxygen again. Another case, is, barium oxide. Heat it in oxygen, at a moderate temperature, and it takes up the oxygen to form barium oxide. At still increased temperature, it gives off the oxygen, forming barium oxide, again.

Q. When Dr. Acree was testifying, he gave us some testimony which he supported by an illustration of what is called the acid chamber process, and, according to the transcript of his testimony which I have, he stated as follows:

2011 "Now, the air, itself, cannot oxidize the sulphurous acid readily enough to give you sulphuric acid in quantities which would make it a commercial process, so, we have to use in this form the oxidizing power of the nitrogen peroxide that I spoke of this morning. And, when we lead not only the sulphur dioxide and water, and the air in there, we lead in some nitrogen peroxide, too, and that then reacts with the sulphurous acid very readily, indeed. In this way H_2O gives up one of oxygen, to H_2SO_3 , and leaves NO , which is left to unite with the HNO_3 . Now, that takes place just as quickly as the nitrogen peroxide acts upon the flour, just like that. I am not giving you the details of this, gentlemen, because I do not see any use of going into that, but nitrogen peroxide oxidizes the sulphuric acid just as quickly as it is taken up by the flour, at once. Now, this oxygen monoxide can take up oxygen from the air instantaneously. Takes it up right at once, and forms again NO_2 , and that, again, oxidizes, forming H_2SO_3 , and so small an amount of NO_2 can cause the air—that is what it is ultimately—the oxygen, here—to change into HNO_3 . The NO_2 , then, is the catalytic agent." Now, I want to ask you, bearing of this testimony, first, what is a catalytic agent?

A. A catalytic agent is a substance which increases or decreases the speed of chemical reaction, without undergoing any apparent change, as a rule.

Q. I ought to have added this. Dr. Acree continued: "Now, in the same way, the nitrogen peroxide acts upon the flour, forms nitric acid, that acts upon the flour, too, in turn. Or NO_2 is formed, as I have shown by experiment, and NO_2 , combined with water, forms nitric acid, and that acts upon the flour, and so it goes round and round and round, just exactly as this nitrogen peroxide goes round and round and round in the sulphuric acid industry." I will ask you, Doctor, if there are cases where the catalytic agent is actually, in part, lost or destroyed.

Mr. Butler: I think we will object to that as irrelevant.

The Court: He may answer.

2012 A. A case of the oxides of nitrogen, in the manufacture of sulphuric acid, is a case in point.

By Mr. Elliott:

Q. That is to say,—what is the catalytic agent, there?

A. The catalytic agent is invariably expressed in our texts as N_2O_3 . It is, in all probability, a mixture of the various oxides of nitrogen, but it is expressed as N_2O_3 .

By Mr. Butler:

Q. The mixture is undoubtedly NO and NO_2 , isn't it?

A. It is a problem that nobody has settled with absolute satisfaction, yet, just how much is N_2O_3 , and how much is broken up. Some of it is unquestionably broken up.

By Mr. Elliott:

Q. Now, tell me if it is the accepted theory, at any rate, to-day, that NO_2 acts in the way that I have read.

A. There is an error, by implication at least, in this testimony, if not one—

Mr. Butler (interrupting): Well, now, I think I will object to the reading of another man's testimony, to point out errors by implication as irrelevant and immaterial.

The Court: I do not see, myself, the point about that. I think I will allow him to go on, but there will never be any end to this, if every scientist, or so-called scientist, real or alleged, is to give us lectures and addresses upon the errors of others. The ordinary way is to state what is the fact, but, go on. Let us proceed. That seems to be the easier way.

A. (Continuing) The fact is, then, this, that Mr. Luna—

Mr. Butler (interrupting): I object to this, about Luna.

The Court: Yes. You must stay within your own knowledge, and make answer to his question.

Mr. Butler: Now, I will say, by way of explanation, there are certain chemical points that are material, and if he knows them, let us have them, and that will be the end of it, and if he differs with some other gentleman, let the jury decide who is right.

The Court: The objectionable part of his answer, to me, is, that he is proceeding to what in my judgment is a violation of the rules of evidence. I am not fresh in my reading of it, but my recollection is the case of Union Pacific Railroad against some one, by the Court of Appeals for this circuit, Judge Sanborn writing the opinion—an authority that can be found in five minutes—that books, and especially books by living authors, cannot be put in as evidence. Now, the witness was starting to answer, in effect bringing in a book by some author, whether living or dead I do not know, and that was the part of his answer that I sustained him on. Now, then, of course, as to the cross-examination of a witness, it is another

proposition, as to whether he can be interrogated and asked whether authors so-and-so, and so-and-so, are at variance with this testimony, but, unless I am mistaken,—and it is a matter easily ascertained—he cannot put in evidence, in chief, at least, scientific books. Of course, in some states, you can. Some states you cannot. The rule in this circuit is, according to my recollection, as I have stated, although I am not very clear about it.

Mr. Elliott: I want to proceed.

The Court: I know, but the witness is starting to bring in this case some scientific book, some author, whether living or dead I do not know. Let the witness answer from his knowledge.

By Mr. Elliott:

Q. I will ask you if it is within your own knowledge what the reaction is in this acid chamber process.

A. I think I can work that out. I did not make any effort to remember it. I know how it is invariably said to go.

Q. You can tell us?

A. The sulphuric acid is formed, in the major part, by two [distance] chemical reactions, in one of which the water and sulphur dioxide, oxides of nitrogen, and oxygen in the 2014 air, unite to form nitrocyll sulphuric acid, which is a compound like sulphuric acid, except that it has one NO group in it. Now, that compound, with more water, breaks up into sulphuric acid, and the oxides of nitrogen. Now, the point of the thing is just this. Theoretically, since the—

Mr. Butler: (Interrupting) I will object to that as irrelevant. The question has been answered. He asked him how to make sulphuric acid, and we have found out, now.

The Court: (To the witness) I suppose you were starting to make an argument to sustain your conclusion?

The Witness: I was going to make another statement of facts, as soon as I could get to it.

The Court: Go on, then.

A. (Continuing) It should be possible to make an indefinite amount of sulphuric acid with one treatment of nitric acid, or with these oxides of nitrogen, but there is always a loss of oxides of nitrogen, and so it must be continually added. No manufacturer can continue to manufacture sulphuric acid, without continually adding oxides of nitrogen, or nitric acid. It simply shows this, that the oxides of nitrogen are lost.

By Mr. Butler:

Q. Ultimately?

A. They are lost pretty soon. You have to keep adding nitric acid all the time.

By Mr. Butler:

Q. In very minute quantity?

A. You have to keep adding it all the time, or it gets lost.

By Mr. Elliott:

Q. I understand Dr. Acree, also to testify to this effect: "I can say this, that the flour has in it, nitric acid, and that that is decomposing the flour, in smaller quantity perhaps than it does the flesh, but, that it is acting upon the flour, same proportion to the amount present, just exactly, or, not entirely exactly, and in a manner analogous to the action of a concentrated acid on your hand. It is merely a question of amount". and later on, "I could take enough flour, and get the nitric acid out of it, and then burn my hand with it—much concentrated". I will ask you, would the watery extract of flour, concentrated, burn your hand, in your judgment.

Mr. Butler: We object to the form of the question as improper. It consists in the reading of about a page, I should judge, from the testimony of somebody else. I object to the question as improper in form. I object to the reading of this testimony. If we begin to read these lectures over and over again for implied error, we never will get through with this.

Mr. Scarritt: If that is wrong, Your Honor, we have been led astray, because our friend Mr. Butler has been doing it all the time—not reading, but repeating, and I have repeatedly objected to his doing it.

The Court: I don't know whether you gentlemen are killing time here or not, but if you are, I will adjourn for the day, but let us get at this. Are you waiting for some witness, gentlemen?

Mr. Elliott: I do not see why Your Honor makes that remark.

The Court: Well, you are making slow progress. Go on and answer it. If we are to read every man's evidence, and ask him whether it is true or not, we had better send for our next winter's clothes. Go on.

A. I do not see how the watery extracts could burn anybody's hand, because there is no free mineral acid in it. No free nitric acid in it.

By Mr. Elliott:

Q. Do substances act the same, whether in concentrated or dilute solution?

A. Not necessarily, by any means.

Q. Could you give us some examples, indicating that?

A. Take metallic tin, and treat it with nitric acid of moderate concentration, and you get the substance that we
2016 call metastannic acid, and nitrogen peroxide. If you treat metallic tin with very dilute nitric acid, you get stannous nitrate, and ammonium nitrate, two totally different substances from the first. If you treat metallic zinc with concentrated sulphuric acid, you get zinc sulphate, sulphur dioxide, and sulphate. If you treat zinc with dilute sulphuric acid, you get zinc sulphate and hydrogen. You get plenty of others. Those will do, I guess.

Cross-Examination

By Mr. Butler:

Q. Was there any tin in the seized flour?

A. No tin that anybody knows of.

Q. There isn't much tin in any flour, is there?

A. That was not the answer to Mr. Elliott's question, sir.

Q. I am asking you if there is usually some tin in flour.

A. I am not a flour chemist, but there probably is no tin in it.

Q. What is the law of mass action?

A. I do not pose as a physical chemist, either.

By the Court:

Q. Sir?

A. I do not pose as a physical chemist, either.

By Mr. Butler:

Q. Is that answer satisfactory to yourself, sir, to my question.

A. I can give you an idea of the law of mass action, if you insist on it.

Q. I will not insist on it, if you do not want to undertake it. I will not insist on it.

A. I can give you an idea.

Q. Was your statement that you were not a physical chemist, expressed, Professor, as a reason why I should not have asked that question? I am unable to decide what questions come within the fields of one particular witness's field.

A. I simply undertook to give you the idea that I was an analytical chemist. I can undertake to answer your question, if you want it.

2017 Q. Well, it is up to you. I have asked the question a good while ago.

A. I did not want to, because I did not—

Q. (Interrupting) Then, I will withdraw it, if you do not want to.

A. I did not believe it was part of what I came here to do.

Q. You did not come here for that? Will NO_2 , in contact with water, produce nitrous acid and nitric acid?

A. Yes, sir.

Q. Will nitric acid combine, chemically, with ingredients in flour?

A. I am not a flour chemist. I can give you my opinion. My opinion is not worth very much.

Q. What do you think? I will take it.

A. I think it is combined with some ingredient in the flour.

Q. You have proved that it does, haven't you? A. Yes.

Q. That nitric acid, if added to flour, and nitric acid is not in the flour, then it has combined and formed nitrates, hasn't it? A. Well,—

Q. (Interrupting) Formed other nitro compounds, or nitrates, of some form? A. Yes, sir.

Q. Now, you are not a toxicologist? A. No.

Q. Or pharmacologist? And you would not want to express an opinion as to whether or not the nitro compound which would be formed, is poisonous, would you?

A. No, sir.

Q. Or injurious to the food? A. No, sir.

Q. Will nitrous acid form nitrites in flour?

A. It might. I don't know.

Q. You don't know about that?

A. I don't know for certain what becomes of the nitrous acid. I have my own ideas as to what becomes of the nitrous acid, sir.

Q. I am not asking you what becomes of it. I am asking you whether the chemical properties of nitrous acid are such—I am not applying it to any particular bleached flour—but I want to know about the nature of the substance. Will nitrous acid form nitrites in flour?

A. It will form nitrites, with certain substances which may be in flour.

Q. That is what I mean. Combining chemically with some of the ingredients of the flour. A. Yes, it might.

2018 Q. Like the proteids, organic bases, and form nitrose compounds, won't they? Isn't that well known?

A. I would not undertake to say what they form, because I don't know.

Q. Well, it is, in all human probability, they form nitrites, and nitrose compounds? You know that, don't you?

A. I know there are some probabilities of that. I have no personal knowledge, gained from experiments, on that.

Q. You don't know whether these nitrose compounds, or nitrites, are poisonous in character or not, do you?

A. No, sir, I do not.

Q. Now, you do know that there is water in flour?

A. Yes.

Q. About twenty pounds in a barrel?

A. I know that, yes.

Q. Twenty to thirty pounds in a barrel, isn't there?

A. Yes.

Q. Now, if you take thirty cubic centimeters,—about an ounce and a half,—of nitric acid, and put it on some flour, it would chemically combine with the flour, wouldn't it?

A. Chemically combine with part of it.

Q. Yes, that is what I mean,—with the ingredients of the flour. A. Yes.

Q. You are not an organic chemist? A. No.

Q. You do not pretend, then—and when I say “pretend” I do not use it in any improper sense—you do not pretend to go into the field of organic chemistry?

A. No, sir. I am not an organic chemist.

Q. You simply come here to testify as an analyst?

A. To certain analytical reactions, as an analytical chemist.

Q. Now, I got the impression, and if I do not state it correctly, do not trip me up about it, but see if I get the idea right. I am not speaking with chemical detail, because this matter is very hard for me to understand, but I have got the idea that catalysis, or catalytic action, is the name of something that takes place in the manufacture of sulphuric acid? That is right, isn't it, about one of the reactions?

A. Yes.

Q. At any rate, that manufacture is commercially attended by an action called “catalysis”?

2019 A. I would like to put in one word, there.

Q. Yes.

A. Modern method of making sulphuric acid, is the true catalytic method.

Q. Now, we will say, if the NO_2 is the catalizer, as we call it, it means that relatively a small amount of NO_2 can produce a large amount of chemical action?

A. Oh, yes. No question about that.

Q. And that the amount of product is not measured—well, I cannot express it exactly, but I don't mean that the NO_2 will never wear out, or be used up, because I understood you to say that it will. A. Certainly.

Q. But, by adding small quantities, you can keep up a tremendous chemical reaction, in proportion to the quantities used? A. That is probable.

Q. That is, it seems, in some way, to increase the efficiency, in chemical work?

A. It does just exactly what I said. It increases the speed of reaction.

Q. Speed and quantity both, isn't it?

A. Well, the quantity is correlative of the other. It is a sequence of the other.

Q. That is what I mean. You do not mean it to speed, and then all through, but it is speed and quantity?

A. Yes. The rest of it follows, as a matter of fact.

Q. Will water combine chemically with flour, or any of its ingredients, under any circumstances?

A. I will have to answer that not to my knowledge.

Q. Would you be willing to answer that, or do you want to answer that, in the negative, absolutely?

A. I think a man, when he is talking about a scientific matter, is foolish to make an absolute, positive statement, about some of those things.

Q. Isn't it very well known? Some of these gentlemen who have been here seem to have the impression that it is, and I am reflecting it in my questions, that water does change some of the proteids to certain other things, by chemical reaction, in organic chemistry. Isn't that pretty well known, and also some chemical effect upon the starch, perhaps, working it into the sugar class?

A. It is probable sir, that digestion, with a considerable amount of water, would change some parts of the flour.

2020 I do not think there is much question about that. I was talking in my testimony about spraying it with four cubic centimeters.

Q. I am not speaking of your direct, at all, sir.

A. I thought you were leading to it. Excuse me.

Q. No, sir. I am not leading to anything, except to the single fact, will water combine chemically with flour. I would like to know your views on that, under any circumstances, and I am not going into the circumstances, either, and, if it annoys you a bit, I won't ask that question.

A. It doesn't annoy me, so you understand what I meant when I was talking about spraying, about it having no chemical action.

Q. I have already forgotten that.

A. If you will grant that I meant what I said, when I said that was no chemical action there, or not enough to be measured by heat, now, I will say that I am not sure that, with a considerable amount of water, there is no chemical change. In fact, I suspect there is.

Q. How about bone-ash added to flour. Will chemical action take place under any circumstances?

A. You mean water and bone-ash?

Q. Yes.

A. You said flour and bone-ash. No, not unless there is some ingredient in the bone-ash, that I do not know anything about.

Q. Now, what is chemical action?

A. Well, by chemical action, in the ordinary sense, we mean the change of a substance into—by some other substance, into something entirely different from itself.

Q. Is sweating a chemical action?

A. I have no doubt chemical actions accompany it, sir.

Q. Is freezing accompanied by chemical action?

A. Freezing is undoubtedly accompanied by chemical action.

Q. Is speaking?

A. It may be, inside. It is not outside.

Q. Eating? A. Yes, eating is.

Q. Laughing? A. In general, yes.

Q. A blow of a hammer upon a horse shoe produces a chemical action, if the horse shoe be hot?

2021 A. I should be inclined to question that, except for very insignificant amounts.

Q. If you put a little borax—is that [want] the blacksmiths used to put on? A. Yes, I believe they do.

Q. If you put a little of that on a hot iron, would it make chemical action, making a point on a plowshare, for instance?

A. There is a little action by the borax and the oxides, on the surface of the iron, but it is not in the iron.

Q. It is pretty hard to speak of anything, isn't it, that is not attended by chemical action?

A. That is very true.

Q. This light is attended by chemical action?

A. Well, I think I will have to say no, to the mere phenomena of light.

Q. But I mean the whole thing, the burner, and wire, and all, is attended by chemical action.

A. No, I do not think so.

Q. Is electrolysis chemical action?

A. Electrolysis is different.

Q. I am asking you about another matter, now.

A. There is chemical action in electrolysis, yes, sir.

Q. Lighting a match, a chemical action? A. Yes.

Q. Lighting a candle? A. Yes.

Q. Lighting the gas? A. Yes.

Q. And blowing out the gas is usually followed by chemical action, isn't it? A. That is all true.

Q. So that, when we speak of chemical action being proved or evidence, we are speaking of a broad subject, are we not?

A. Yes, that is true enough.

Q. It is as broad as life, itself, or the existence of things in nature, is it not? A. It is pretty broad.

Q. Well, it is just that broad, chemical action is, isn't it?

A. Just about.

Q. The existence of the earth, itself, is probably due to it, isn't it? A. I should not wonder.

Q. And you will not say that your existence and mine is not due to it?

A. I have a pretty good sized idea that it is due to it.

Q. Yet, in your laboratory, you never produced life, have you? A. No.

2022 Q. Or proteids?

A. That is an organic proposition. I guess not though.

Q. I want to call your attention to another thing, to see if you agree with me, about the rule of positive and negative results in the analytical work of a chemist.

A. Tell me what you think about that, and [they] I will tell you.

Q. Well, I got it into my head this way, that negative results may or may not prove anything, but that one positive result, obtained by true methods, establishes a fact, and that no amount of failures, by other methods, to establish the fact, will negative that result.

A. I am inclined to think, sir, that—

Mr. Scarritt: (Interrupting): We object to that as a mere argument.

The Court: He may answer.

A. (Continuing) I am inclined to think, sir, that upsets our theory of qualitative analysis, to a certain extent.

Q. Suppose we were examining a corpse, to ascertain whether or not the victim had been poisoned. A. Yes.

Q. And you examined, and found no poison, and with me you examined again, and found poison, what would be the truth?

Mr. Scarritt: We object to that as mere argumentation.

The Court: He may answer.

Mr. Scarritt: We except.

By Mr. Butler:

Q. The truth would be that the poison was contained there, would it not?

Mr. Scarritt: Same objection.

A. If I may answer that as I please, I would say this: that you are as liable to error, sir on one side, as you are on the other.

Q. I know, but if the poison was not there, it could not be found, could it?

A. That brings me back to the same thing.

Q. Well, could it? A. Yes. It can be found.

Q. You can find something where nothing is?

A. You can, if you make mistakes.

Q. That is all, if that does not illustrate the positive.

2023 A. You can make mistakes on either side, sir. That is the point I made.

Q. I am not speaking of mistakes. I am speaking of discovery of a positive result.

A. If there is absolutely poison there, the finding of it would be correct, and the other would not be correct.

Q. And then, though a thousand men had looked, and did not find it, it would be no evidence that it was not there, after the positive result, would it.

Mr. Scarritt: Same objection.

A. It would take more than one finding, on the strength of a thousand not finding it, sir, to satisfy me.

Q. It would? A. Yes, sir.

Q. You teach chemistry? A. Yes, sir.

Q. Suppose you had given a difficult specimen for examination to a class of fifty, and they had all looked, and could not find it, and you looked and did find it. Would you say that it was there? A. That would be because I happened to know.

Q. Because you knew how? Because you looked in the right place? A. Because I happened to know.

Q. Because you looked in the right place?

A. No, sir, I would happen to know, sir.

Witness Excused.

Walter M. Cross, being called as a witness on behalf of the claimants, being first duly sworn, was examined by Mr. Elliott, and testified as follows:

Direct Examination.

Q. What is your name? A. Walter M. Cross.

2024 Q. What is your profession?

A. My profession is that of a chemist.

Q. Will you state your qualifications as a chemist?

A. As preparation for the practice of chemistry, I was graduated from the University of Kansas, and from the University Medical College, and, during the last ten years, I have conducted a commercial laboratory in the city of Kansas City, and, during the last five or six years, I have occupied the position of chemist to the municipality of the corporation of Kansas City.

Q. Are you familiar with the occurrence of nitrites, or nitrite reacting material, in nature?

A. I have some familiarity with the occurrence of nitrites or nitrite reacting material in nature.

Q. Are you familiar with water analyses?

A. I have some knowledge of water analyses.

Q. To what extent, if any, have you found nitrites to be present in drinking water?

A. In numerous instances I have found nitrite reacting substance in drinking water, which I took to be nitrites.

Q. Well, I am using the term "nitrites", without limiting you to an actual nitrite, as such, but, as we have all been using it, in the general sense—this thing that gives the reaction with the Griess test. A. Yes, sir.

Q. Now, in what amount have you found nitrites in drinking water?

A. I have found as much as four parts per million in a drinking water which I have in mind at the present time.

Q. To what extent, if any, have you found nitrites in the water in Kansas City?

A. In practically all of the surface underflow of Kansas City, Missouri, contains nitrites.

By Mr. Butler:

Q. What do you mean by that?

A. The surface underflow, that is the first flow of water you come to, in making a boring, next to the surface, but above the rock formation.

By Mr. Butler:

Q. Is that the water you drink here? A. No.

2025 By Mr. Elliott:

Q. Now, suppose you should examine a water containing, we will say, five parts per million of this nitrite reacting substance, and ascertained, also, that such water was free from bacteria. I will ask you, would you condemn such a water?

A. I should not condemn such water on that ground. It would be, probably, free from bacteria.

Q. Why wouldn't you?

A. Because I should not consider that it contained something which, when taken into the human system, would produce injurious results.

Q. Have you examined food samples, bought on the Kansas City market, as to their nitrite content, and if so, with what results?

A. I have examined a good many samples, and I have found nitrites in many.

Q. Can you mention some of these things?

A. I have in mind at the present time corned beef, pickled pigs' feet, pickled tongue, smoked white fish, radishes, and I just cannot think of many others. Ham is another one.

Q. I will ask you if you have made any experiments to ascertain if nitrites would disappear, when put into a digestive fluid, such as pancreatin.

A. I have put some pancreatin into a flask containing some nitrites, the other day, and, after a short time, the materials failed to give the nitrite reaction.

Q. What did you use? A. I used some pancreatin.

Q. I mean, what kind of nitrites.

A. I used an aqueous solution of sodium nitrite.

Q. Now, I will ask you if you have ever exposed fresh flour to the air, to ascertain if such flour will take up nitrites from the air, and if so with what results.

A. I have exposed fresh flour to the air, and, after a while, it gave a pink color with the Griess reagent.

Q. Was that flour found by you to be free from that reaction before you exposed it?

A. It did not give the reaction, in the particular instance I have in mind, before exposure.

2026 Q. How long did you expose it to the air?

A. It was for three or four hours, in the case which I have in mind.

Q. Have you made any investigation, Doctor, to determine if met-hemoglobin is produced in the blood, when nitrites are taken internally?

Mr. Butler: I didn't understand he was a physiological chemist, or medical man.

By Mr. Elliott:

Q. You are a doctor, Mr. Cross? A. Yes, sir.

By Mr. Butler:

Q. Medical doctor? A. Yes, sir.

By Mr. Elliott:

Q. I believe you did not state that in your qualifications.

A. I am registered in this state, and I am a graduate of the medical college.

Q. Have you made any investigations to determine if met-hemoglobin is produced in the blood, when nitrites are taken internally?

A. Met-hemoglobin is not always produced when nitrites are taken into the stomach.

Mr. Butler: I move to strike that out as not responsive to the question, incompetent, irrelevant and immaterial. He has not laid any foundation on that.

The Court: It may stand.

By Mr. Elliott:

Q. Have you made any investigation, Doctor, to determine if met-hemoglobin is produced in the blood, when nitrites are taken internally? A. I made such an investigation once.

Q. Will you please tell me where, when, and under what circumstances your investigation was made?

A. I think it was in 1902, at the University Medical College, that we were making some determinations as to the formation of met-hemoglobin in the blood.

Q. Now, tell us what you did.

A. We took some nitrites, internally.

2027 By Mr. Scarritt:

Q. Who did? A. I did.

By Mr. Elliott:

Q. Just deal with yourself, if you will be good enough. Tell us how much you took. A. About a half a gramme.

Q. About half a gramme? A. Yes, sir.

Q. What is that in grains? A. About seven grains.

Q. About seven grains? A. Yes, sir.

Q. Did you take it all at once?

A. Yes, sir, at one dose.

Q. Then what next did you do?

By Mr. Butler:

Q. Did you take it all at once, Doctor? A. Yes, sir.

By Mr. Butler:

Q. At the same time? A. Yes, sir.

By Mr. Elliott:

Q. Now, what next did you do, Doctor?

A. In three or four hours we tested for met-hemoglobin by the spectroscope.

Q. You tested your own blood, did you? A. Yes, sir.

Q. And with what results?

A. We got no spectrum of met-hemoglobin.

Q. Did you make more than one test for met-hemoglobin?

A. At that time, we made some tests with acetanillid.

Q. No, I mean, did you make more than one test on yourself, at different times, or did you test your blood once?

A. I only took a lot, once.

Q. Are you familiar, Doctor, with the way—in a general way, I mean, with the use of nitrites as medicine?

A. I have some knowledge as to the effect of nitrites as medicine.

Q. I want to put this question to you. Assuming that the flour in this case was bleached by the Alsop process, and as a result, contains 1.8 parts per million of nitrite reacting material, and assuming that the bread made from that flour contains from one-fourth to one-fifth of that amount of
2028 nitrite reacting material. I will ask you if, in your judgment, eating of such bread could produce any harmful effects upon the system.

A. The eating of such bread, in my opinion, would not produce harmful effects.

Q. On the assumptions of the last question, I will ask you if, in your opinion, the eating of such bread could produce any effect upon the system.

A. It is my opinion that it would not produce an effect at all.

Cross-Examination

By Mr. Butler:

Q. Would not even make him fat?

A. I do not know that it would make him fat.

Q. Eating bread would not produce any effect on the system. Is that your testimony, as a scientist?

A. I did not make any such testimony, or such statement.

Mr. Butler: Please read his last question and answer to Mr. Elliott.

(Question and answer read as requested.)

Q. So that the flour made from this seizure, if eaten—

A. (Interrupting) He was referring to the nitrites in the seizure flour, and the context so indicates, and, therefore, the nitrites would not make him fat.

Q. Is NO₂ gas poisonous?

A. Whether or not it is poisonous depends entirely upon the concentration, or character of combination in which it exists.

Q. (Referring to an exhibit) Is that poisonous? There is some, right there. A. I would not know that is NO₂ gas.

Q. I tell you it is. Is it poisonous?

A. Under certain circumstances, it could be poisonous, and under certain others it could not.

Q. If you did not take it, it would not hurt you? A. No.

Q. If you took it, it would?

A. It might hurt you, if you took it.

2029 Q. NO₂ is always safe, if you do not take it, isn't it?

A. I should say it would not hurt you, if you did not take it, under any circumstances.

Q. It is always safe in a bottle? A. Yes, sir.

Q. So, therefore, you say it is not poisonous, unless you know how much has been taken?

A. Or unless I know the combination in which it was taken, sir.

Q. Are some substances poisonous by their nature?

A. Depends entirely upon the combination we find them in.

Q. Now, let us talk English a while, and find out whether or not you understand the meaning of a poisonous substance, as it is commonly used among the people. Do you?

A. I think I do.

Q. What does it mean?

A. Anything has a poisonous action upon a human being which, [is] taken into the system of a human being has an injurious effect.

Q. Well, now, if nitrous acid is taken into the system of a human being, will it have an injurious effect?

A. That would depend entirely upon the combination in which the nitrous acid was taken into the system.

Q. If the nitrous acid changes your blood from the hemoglobin to met-hemoglobin, would that be injurious?

A. Anything that changes your blood from hemoglobin to met-hemoglobin would be injurious, certainly.

Q. And, if it changed a single molecule of my blood, it would be injurious?

A. I should not say it was.

Q. You could not measure it?

A. Neither could you say it was injurious, if you could not measure it. That would be pure speculation.

Q. As a physiological chemist, do you say it is safe to eat any foods, when you could not see injurious effects of it, by the symptoms following the eating of it?

A. Unless the eating of some poison or injurious substance produced symptoms, it would not be injurious.

Q. So, then, you hold every drinking water is fit to
2030 drink unless the drinking of it will produce symptoms of ill health?

A. Unless the drinking of the water is capable of producing under certain circumstances, ill health, it would be entirely safe to drink.

Q. Four parts per million of nitrites is a good thing in water, or a bad thing in water?

A. That question depends entirely upon the circumstances, sir.

Q. Well, tell me the circumstances which made it good to drink nitrites in water.

A. One cannot always call to mind all of the circumstances.

Q. Well, can you call to mind any of the circumstances which make it good to add nitrites to food or water?

A. I could call to mind a circumstance which would make in an indifferent matter.

Q. Well, I mean, to make it good.

A. Now, whether or not it is good, I could not say, but I could say it was indifferent.

Q. Chemists, the world over, fear nitrites in water, do they not, or water analysts?

A. As an indication of contamination by organic matter. They use it as a criterion, because all animal matter, at some point in its decomposition, must pass through the nitrite stage.

Q. That is the reason you find it in rotten vegetables, and rotten food?

A. It is found in food that is not rotten.

Q. You find it in rotten fish?

A. Likewise in rotten fish, yes, sir.

Q. Find it in all decaying vegetable matter?

A. Almost universally distributed in the air of this city.

Q. In what extent?

A. In small extent. Enough to combine with flour, I suppose.

Q. What is that?

A. Enough to combine with unbleached flour, I suppose, if exposed to the air.

Q. Does it combine with the bleached flour?

A. I don't know whether it does or not. Possibly.

Q. You think it would combine with the unbleached?

A. It did, with the unbleached probably.

2031 Q. Now, that is very interesting. The average surface water, known to be pure, contains no nitrites? Is that not true?

A. That is true to a certain extent. There are waters which contain nitrites.

Q. I am reading from a book called "The Examination of Water" by Mason. He is the professor of chemistry in the Besselaer Polytechnic Institute, and a member of a lot of societies.

A. I am familiar with the high standing of Mr. Mason.

Q. He states, does he not, at Page 47, that the average, in sundry surface waters, known to be pure, there is no nitrite?

A. He probably does.

Q. And, the average, in sundry surface waters known to be polluted, is 0.006. That is six thousandths of one part per million. That is polluted water is known to have six thousandths of one part of a million. That is so laid down, is it not?

A. I believe that he says it is an indicator of organic decomposition.

Mr. Butler: I move to strike out his testimony.

A. (Continuing) That is what he says. You are picking out a little statement of the context, and making it appear true, which it is not.

Mr. Butler: May it please the Court, I ask that this witness's statement be stricken out. I ask if I am to be insulted by this gentleman, in his cross-examination, when I am asking him a fair question.

The Witness: I wish to apologize to the gentleman, if I insulted him.

Mr. Butler: Well, it is insulting.

The Witness: Not so much so as your own remarks, if you please, sir.

The Court: Now, just a moment. I find not only this witness, but a great many others who come here, insisting upon delivering us addresses and lectures. Now, witnesses ought to answer questions, and, if they have any feeling, conceal it.

Now, read the question, and let him answer it.

2032 Mr. Butler: He answered the question. My motion was to strike out his statement.

Mr. Scarritt: Now, if Your Honor please, just let me make a statement. The witness said Mr. Butler did not read the whole context.

The Court: That is, did not read the whole book?

Mr. Scarritt: Oh, no.

The Court: Well, the whole chapter?

Mr. Scarritt: No, but I understood him to say there was some modification of it.

The Court: Now, let us settle it. Hand it to the witness. I am getting tired of bandying words, here.

By Mr. Butler:

Q. (Handing the book to the witness) I have not read elsewhere than beginning at the top of page 47, either now, or at any other time.

The Court: Now, read what you say modifies it.

By Mr. Butler:

Q. Begin at the top of the page, and read Page 47, and read it to the jury.

Mr. Scarritt: I insist, if Your Honor please—

A. (Interrupting) I will read, if you please, the thing that was in my mind when I made the statement, if it is desirable.

Mr. Butler: Is this gentleman to run this court?

The Court: Just to keep these scientists from running everything, let me have the book. Now, Doctor, just listen to me.

The Witness: I want to apologize if I have offended anybody.

The Court: Now, listen to me. It is proverbial, and has been ever since I have been at the bar, and emphasized here by witnesses on both sides, that you cannot get scientists to answer the questions, but they insist—I do not say whether it is through egotism or vanity—they insist upon delivering
2033 addresses and lectures, and we cannot get them to answer the questions. Now, they are not interesting to me, and this jury has no time to listen to them. Now, please answer the questions.

The Witness: Would I be permitted to make one statement?

The Court: Yes, you may make one statement.

The Witness: The only time, Your Honor, that I ever consciously make a lecture, is in the way of an explanation, when the answer "Yes" would be an untruth, and where the answer "No" would also imply an untruth, and that is the only thing. I do not like to leave a false impression. That is the only thing. I do not wish to be misunderstood.

The Court: Now, you are knocking down a straw man, there. Now, nobody has asked you to answer a question yes or no.

By Mr. Butler:

Q. Is it not stated in the book I have referred to, by Mason, that "Average in sundry surface waters known to be pure, no nitrites; average in sundry surface waters known to be polluted, 0.006; average in sundry ground waters known to be pure, no nitrites; average in sundry ground waters known to be polluted, 0.003, or, three thousandths of one part per million." (handing the book to the witness.)

The Court: Now, if you can find anything modifying that, you can read it.

By Mr. Butler:

Q. Is it not so stated? A. I think it is.

Mr. Scarritt: We object to that question as an improper question, and immaterial.

The Witness: If you say so, I think it is.

The Court: If he finds anything in the book modifying that, he may read it.

Mr. Scarritt: But, the question is, is that in the book? That is an improper question. He may state that a certain author says so and so, and ask him if these are his views.

2034 The Court: He may answer the question.

By Mr. Butler:

Q. Did you ever, in your life, find any water, which is ordinarily consumed by people, which is free from bacteria?

A. I have found a water that is consumed by the people, that was free from bacteria, but very seldom.

Q. Then, as a practical matter, practically all of the water consumed by the human family, drinking water, contains bacteria? A. I think most of it does, sir.

Q. I understood you to say that bacteria render nitrites, in water, more dangerous than they would be if there were no bacteria in the water. Did I understand you correctly?

A. My statement was that the nitrites of themselves, were not regarded as the cause and the reason for condemning a water, but they were merely a pointer, indicating the activity of germs, these nitrites being the products of excretion of germs.

Q. Exactly. And, that this excretion of germs continues to produce other nitrites?

A. Germs of certain classes excrete nitrites.

Q. And those nitrites are dangerous, in water?

A. The germs themselves, are dangerous, and we do not condemn water on account of the nitrites, but on account of the fact that they are a sign—they are a track, showing that the other beast is there, or has been there.

Q. Now, I want to ask you whether food, like bread, may be injured by the adding of nitrous acid to it.

A. That depends upon the extent to which nitrous acid is added to the bread.

Q. By appropriate extent. Sufficient. If sufficient be added.

A. It would be possible to add sufficient nitrous acid to bread, to make it injurious.

Q. And so with nitric acid? A. Yes, sir.

Q. And so with NOCl? A. Nitrosyl of chloride, yes, sir.

Q. And so with NO₂? A. Yes, sir.

Q. And so, with N₂O₃? A. Almost anything. Salt, if you please.

2035 Q. Are they of the some class as salt?

A. Salt is a poison, if taken in too large a quantity.

Q. Do you say that strychnine, and prussic acid and salt and vinegar are all in the same class?

A. Strychnine is much more poisonous then salt.

Q. Is nitrous acid more poison than salt?

A. Very much more so, yes.

Q. Is NO₂ much more poisonous than air? A. Yes, sir.

Q. Very much, isn't it? A. Yes, sir.

Q. Can you think of a substance that is not poisonous?

A. Well, very few. Water might not be regarded as poisonous, although water, under certain circumstances, injured people.

Q. How much strychnine would you say would be poison?

A. Oh, I should say a half—repeat the question, will you, please?

A. How much strychnine would be poisonous?

Q. Yes, to a human being.

A. I should think a half a grain.

Q. How much did they find in Swope's remains?

Mr. Scarritt: I object to that.

A. I don't remember.

Mr. Butler: I will withdraw that.

Q. If you found in a body at post mortem, one one-hundredth part of a grain of strychnine, answer to the jury, would you find poison at post mortem?

A. I found one one-hundredth grain, post mortem, in the body of an animal, and he had not been poisoned.

Mr. Butler: I move to strike that out.

The Court: That is not an answer.

Mr. Scarritt: That is an answer.

The Court: That is not an answer, and I so hold.

The Witness: I intended to answer the question.

(Last question read by the reporter.)

A. One one-hundredth grain of strychnine would not be poison.

By Mr. Butler:

Q. It would not be a poison? A. No, sir.

2036 Q. So, if you were employed to examine a dead human being, at post mortem, and you found only one-hundredth part of strychnine, you could conscientiously swear that you found no poison at post mortem, could you?

A. I could not conscientiously swear that the person had been poisoned, for the reason that it would be, of itself, not a poison, itself, but it might be that he was poisoned.

Mr. Butler: I move to strike out his answer.

The Court: That is not an answer, Doctor.

The Witness: May I hear the question again?

(Last question read by the reporter)

A. In that case I could not conscientiously swear that I found poison there.

Mr. Butler: I want my question answered.

The Court: Now, Doctor, he did not ask you whether or not you found poison enough to kill.

The Witness: I tried to say not.

The Court: He did not ask you whether death came by poisoning. He did not ask you that question, at all.

The Witness: Your Honor, I cannot answer that question, the way you want me to, or the way he wants me to. Now, Your Honor, the idea is this: this one one-hundredth grain of strychnine might be found, and the patient had died with symptoms of poisoning. It would then be an indication, but of itself, it is not a poison, and I would say no to the question, if I had to answer it that way.

Br Mr. Butler:

Q. No, but my question was, could you conscientiously swear that you found no poison at post mortem?

Mr. Scarritt: Same objection.

A. That would entirely depend upon the circumstances, and the history of the case, whether you would say you found poison or not. Therefore, I cannot answer the question.

Q. Suppose you found another hundredth part of cyanic acid. One one-hundredth of a grain, on top of the one
2037 one-hundredth of a grain of strychnine—hydrocyanic acid. I would then ask you whether you could conscientiously swear the same as you are swearing here in this bleached flour case, that you did not find any poison whatever, at post mortem.

Mr. Scarritt: Same objection.

The Court: He may answer.

A. The history of the case would guide me entirely in my report, as to whether I found any poison.

Br Mr. Butler:

Q. Suppose you did not know the history of the case, and knew nothing about it, except what you found in the stomach. Then, what would you say?

A. I would merely report the fact of finding the chemical, and not state whether it was poison.

Q. Could you conscientiously swear that you did not find any poison, under such circumstances?

Mr. Scarritt: Same objection.

A. I would say that I found poison.

By Mr. Butler:

Q. So would I.

Mr. Butler: That is all.

Mr. Helm: Would the Doctor want to examine the book and make an explanation?

The Court: He may if he wants to.

The Witness: The idea was that, in this nitrite discussion we had a while ago, I made the remark, and counsel took umbrage at it, that he had picked it out of the book, and had twisted it into an entirely different meaning, and I was going to read the context.

The Court: I told you if you found anything in there modifying it, to read it.

The Witness: The idea was that on page 47, he said—on page 45 this is. (Reading) "Upon the presence of nitrites in eighteen natural waters, believed from actual use to be of good, wholesome character, and collected from every variety of source, Mallet's determinations show an average of 0.0135 part nitrogen as nitrites per million parts water. The average, by the same investigator, for nineteen waters which there seems to be fair ground for believing have actually caused disease is 0.0403 part per million. The author's experience has been that the average amount of nitrites found in good waters is very much less than the value given by Mallet. In this connection it would be well to bear in mind Frankland's statement that the presence of these salts in spring and deep-well water is absolutely without significance; for, although they are in these cases generated by the deoxidation of nitrates, this deoxidation is brought about either by the action of reducing mineral substances, such as ferrous oxide, or by that of organic matter which has either been imbedded for ages, or, if dissolved in the water, has been subjected to exhaustive filtration. This is merely another in-

stance of how careful the analyst should be to become familiar with the source of the water before undertaking to pass judgment upon its quality. Nitrites should always be looked upon with suspicion if found in ground or surface waters. The absence of nitrites, moreover, proves nothing. The author has had a most foul water for analysis which showed but a trace of nitrites and no nitrates, and yet the water was contaminated with the entire house drainage, and produced serious illness." Now, comes the part he read, and I do not think he should have taken umbrage at what I said. I have read the whole paragraph.

Mr. Butler: Yes, and I am very much obliged to you.

The Witness: I do not think you ought to have taken umbrage at what I said.

Mr. Butler: I think you were inspired to it, by counsel.

The Witness: That is a prevarication, if you think that.

Mr. Butler: Well, I do. I think you were inspired by their conduct in open court.

The Witness: They did not say anything to me about it.

2039 Mr. Butler: Just before it occurred. I was interrupted by counsel, and criticised as not doing what was right.

By Mr. Butler:

Q. Now, the statement that you read, here, "The average, by the same investigator, for nineteen waters which there seemed to be fair ground for believing have actually caused disease is 0.0403 part per million", that is, four hundred and three ten-thousandths. That would be four hundred and three ten-thousandths of one part to the million? A. Yes.

Q. The water that you found containing four parts to the million, was, as I compute this, by figures, one hundred times stronger in nitrites than this, that produced disease.

A. That did not say that they produced disease, if you please.

Q. (Reading) "Which there seems to be fair ground for believing have actually caused disease."

A. I think this water that I examined, that had that much in it, was such that it would not have produced disease, if it had been used.

Q. And you told Mr. Elliott that you proved it free from bacteria, but no water is free from bacteria. You would approve water containing four parts to the million, or six parts to the million, as this author says, of nitrites,—“The average, by the same investigator, for nineteen waters which there seems to be fair ground for believing have actually caused disease.”

A. I would condemn such a water, not on account of the nitrites, but on account of its general suspicious character.

Q. Now, just for the benefit of the people of Kansas City. If you found six parts to the million in water, furnished to the people to drink, here—six parts of nitrites to the million, would you condemn the water?

A. I should think that it was a pointer sufficient to cause me to condemn it. Under ordinary circumstances I should, sir.

Q. If you found four ten-thousandths of a part, would you condemn it?

A. As an indication of bacterial contamination, I should sir.

Q. You would condemn water containing any estimable or determinable amount of nitrites, for a great city like this, wouldn't you?

A. I should, unless I found, upon further examination, that there was nothing injurious about it, outside of that.

Q. But it would be practically impossible to demonstrate that, with such certainty that the lives of this city should be risked by the proof? Isn't that true?

A. That would depend upon whether the nitrites got in from sewerage. If it was in the water of the Missouri river, into which the sewage of St. Joseph had emptied, I would condemn it, not on account of the nitrites, but on account of the indication of other conditions.

Q. On account of the fact that they indicate terrible disease germs?

A. Probably organic matter that gave rise to these nitrites.

Q. That these disease germs are accompanying the course of the nitrites? That is the truth, isn't it?

A. Yes, sir, that is the truth.

Q. So that, as an adviser to health, and as a chemical man, care should be taken with respect to all food—all organic foods, vegetables or meats, to keep down nitrites, because these nitrites may be associated with the most deadly disease germs known to your profession, shouldn't it? A. Yes, sir.

Q. And it is a perfect humbug and fraud to say that nitrites are necessary to human life?

A. Yes, sir, I should say so.

Mr. Scarritt: We object to that as an improper question.

The Court: He has answered and the answer may stand.

Mr. Scarritt: We except.

By Mr. Butler:

Q. You think that is so, don't you? A. Yes, sir.

Q. Now, it is well known by your profession, is it not, that nitrites indicate danger in foods?

A. They are like red flags, you know, to the engineer.

Q. Now, you do not have to wait, either, do you, till you measure the wicked germs that are there, and weigh them, do you, to condemn the food that is producing nitrites, do you?

A. Under certain circumstances I would condemn it.

2041 Q. That is the general rule?

A. We would not, a ham that contained nitrites, commonly.

Q. No, but it is not producing them?

A. No. They are produced during the process of curing, probably.

Q. So that, if this bleaching process sets up an action in flour, a chemical action in flour which generates nitrites therein, it is a warning that there may be germs there, destructive of human life, is it not? A. No, sir.

Q. Why?

A. In that case it is no indication that there is germs in it.

Q. Why? Where do they come from, then?

A. We have just been hearing, at great length, that the nitrites came from the nitric oxide, nitrogen peroxide, I believe, in flour.

Q. Where do they come from. I am asking you now.

A. The nitrites in the water come from—

Q. (interrupting) In the flour? A. In the flour?

Q. Yes.

A. I presume if there are nitrites in the flour, they come from the result of this arcing that we see in a bleaching process.

Q. Suppose the bleaching makes the flour decay, and, in the process of decay, they produce nitrites. Then, what do you say?

A. The bleaching would not have any action on promoting the rapidity of decay, I should say. I have had no personal experience.

Q. Let us assume that it did promote decay.

A. I cannot conceive of such an assumption. Therefore, I cannot answer that.

Q. Assuming that to be a fact, that bleached flour does decay.

Mr. Scarritt: We object to that as a wrong assumption.

Mr. Butler: There is testimony here to that effect, as I understand it.

Mr. Scarritt: Not in this flour.

The Court: Why, Judge Scarritt, as I understand it, it is claimed that it gives it three months' decay, instant.

Mr. Scarritt: What is that?

The Court: As I understand some of the witnesses on your side, it gives three months' decay, instantaneously,
2042 instanter.

Mr. Helm: In the sense that—

The Court: (interrupting) Well, in the sense. We will adjourn court until tomorrow morning.

Mr. Scarritt: You entirely misunderstand it.

To the remarks of the Court, upon said objection, the claimants object and except.

Court thereupon adjourned to meet again at ten o'clock a. m., Tuesday, June 28, 1910.

Morning Session.

Kansas City, Missouri, Tuesday, June 28, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Dr. Walter M. Cross, continued his testimony as follows:

By Mr. Elliott:

Q. Dr. Cross, just one matter I wanted to ask you about. You were asked the question on your cross examination that if you examined the water and found it to be free from bacteria and that water contained five parts per million of nitrite re-acting material, would you condemn it, and so on, and then Mr. Butler asked you if all waters did not contain a certain amount of bacteria. I want to ask you if you make any distinction between bacteria such as naturally occurs in water and bacteria that may be the cause of nitrite substance in water.

A. The bacteria which might occur in water that in
2043 conjunction with nitrites would cause one to condemn it or this kind of bacteria which when taken into the human system are likely to produce disease.

Q. How do you name those bacteria? A. Pathogenic.

Q. Pathogenic? A. Yes, sir.

A. And as to the bacteria which normally occur in most waters?

A. Practically all natural waters contain bacteria, although it may be perfectly wholesome and these germs are—those which are taken into the system do not produce disease and are non-pathogenic.

By Mr. Butler:

Q. Have you ever examined and ascertained whether or not flour contains bacteria?

A. I have never made any bacterial tests of flour.

Q. Do you know what the truth is in that regard?

A. Flour—most samples of flour I could say from general knowledge of bacteria, distribution of bacteria, contain bacteria in considerable quantities.

Q. That is all, sir.

Dr. Henry Albert, called as a witness on the part of the claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. State your full name, Dr. Albert.

A. Henry Albert.

The Court: Now, speak loud so people on the back seats can hear you.

2044 A. Henry Albert.

Q. Where do you live? A. Iowa City.

By Mr. Elliott:

Q. What is your profession, Dr. Albert?

A. I am a physician and teacher.

Q. What are your qualifications?

A. I am pathologist and I have charge of pathology and bacteriology at the University of Iowa.

Q. University of Iowa? A. Yes, sir.

Q. At Iowa City? A. Yes, sir.

Q. I want to ask you, Doctor, first, if you made any investigations in respect to the production of met-hemoglobin by nitrites taken internally? A. Yes, sir, I have.

Q. In a general way what has been the character of these investigations?

A. In the administration of sodium nitrite to myself and to some animals.

Q. Now, take first the animals which you used, tell us what you did. A. I took three white rats.

Mr. Butler: Oh, well, I object to the rat experiment, I think it is immaterial and irrelevant. This action is for the protection of people.

The Court: I will hear him briefly, proceed.

Q. Dr. Albert, let me ask you as a preliminary, is it within your knowledge amongst scientific gentlemen of your school that experiments with animals are commonly employed to ascertain effects of drugs and the like?

A. Yes, sir, they are.

The Court: I could not hear you now, Doctor.

A. Yes, sir, they are.

Q. Now, first tell us what you did with these rats, Dr. Albert.

Mr. Butler: We object to that.

The Court: I will hear you briefly to make this experiment with rats and other rodents.

Mr. Elliott: No other rodents, just rats.

A. I had three white rats.

By the Court:

Q. Three white rats?

A. To one I fed 1/140th of a grain of sodium nitrite, to two of them I fed 1/140th grain of sodium nitrite, and to the third I fed 1/14th of a grain of sodium nitrite.

2045 Q. How does that 1/140th correspond to what will be given to normal man?

A. Normal man about 150 pounds. It corresponds to three grains.

By the Court:

Q. Corresponds with what? A. To three grains.

By Mr. Elliott:

Q. Now, take the first rat, tell us what you did?

A. I administered or fed it, and at the end of one hour the rat was killed and the blood examined and examined for methemoglobin and none was found.

Q. None was found?

Judge Scarritt: How was it killed?

By the Court:

Q. Do the corpuscles of the blood of a rat correspond with the blood corpuscles of the blood of a man? A. Yes, sir.

Q. Can't tell them apart?

A. No, sir, you can't tell them apart.

The Court: Can't tell the blood of a rat from the blood of a man, he says.

Witness: You can tell the blood, yes, sir, but the corpuscles are exactly the same shape, about the same size, you can by blood tests, you can differentiate between the blood.

By Mr. Elliott:

Q. Now, take the second rat.

A. The second rat was killed at the end of two hours.

Q. You gave him the same amount as the first?

A. The same amount as the first, and examined the blood of that rat for methomoglobin and did not find any.

Q. Now, give us the third rat; how much did you feed?

A. To the third 1/14th of a grain of sodium nitrite.

Q. How does that compare with a dose for normal man?

A. Normal man, thirty grains of sodium nitrite to the normal man.

Q. 1/14th of a grain to this rat would correspond to a man of 150, is that correct? A. Yes, sir.

By the Court:

Q. Well, you measure the strength of a man by his weight?

A. Yes, sir, we correspond have it correspond, to the weight.

Q. I just wanted to know.

A. And this one we administered 1/14th of a grain and killed this rat at the end of one hour and examined the blood.

2046

Q. You mean you killed the rat? A. Yes, sir.

By Judge Scarritt:

Q. In each instance? A. In each instance I killed it myself.

By Mr. Elliott:

Q. Now, what result? A. No methomoglobin.

Q. Now, have you made any experiments with human beings in regard to this production of methomoglobin with nitrites taken internally? A. Yes, sir, I experimented on myself.

Q. Tell us what you did, Dr. Albert?

A. I took three grains at seven o'clock one evening, three grains at ten o'clock the same evening, three grains the next morning at nine o'clock, and at ten o'clock I examined my blood.

Q. With what result? A. Found no methomoglobin.

Q. Between seven o'clock in the evening and nine o'clock in the morning you took, as I understand it, nine grains?

A. Yes, sir.

Q. Did you notice any symptoms or ill effects from the use of this amount of nitrite? A. No, sir.

Q. That is all.

Cross-Examination

By Mr. Butler:

Q. Did you examine the blood by means of the spectroscope?

A. Yes, sir.

Q. What make of spectroscope did you use?

A. It was a Bosch & Lamb.

Q. It has not been spoken of at this trial, Dr. Albert?

A. I don't know.

Q. What I am about to say, they tell us that the Griess test, Griess-Ilosvay test for nitrites is so delicate that you can find one part to the billion under the most favorable conditions; then I got the impression that other chemical tests are not so delicate, am I right about that? A. I don't know.

Q. Do you think that chemical tests in analysis are generally as delicate as the Griess re-agent for nitrites?

A. Well, sir, I can't tell.

2047 Q. You can't tell? A. No, sir.

Q. Did you ever study chemistry?

A. Yes, sir.

Q. Is it not known elementary that the Griess test for nitrites is the most delicate test, or one of the most delicate tests known to chemistry, and will disclose the minutest amounts?

A. Well, sir, I am not qualified to answer.

Q. Yes. Was this a pocket spectroscope you had?

A. Bosch & Lamb, a large table spectroscope.

Q. Did you use them both on each specimen?

A. No, sir, I used the pocket spectroscope upon—

Q. What say?

A. I used the pocket spectroscope in all my specimens.

Q. Is that better than the table one?

A. Yes, sir, I found it to be better than the table one, just as good.

Q. How many corpuscles in your blood, Doctor?

A. You mean the entire body? I can figure it out, there are about five million per cubic millimeter.

Q. And that would be about how many?

A. I would have to figure it up.

Q. Five million per cubic millimeter? A. Yes, sir.

Q. Well, it don't show—where are those cards, we had a little millimeter there, I think, so we can get at it. Now, these are milligrams, I guess.

A. Did I say five thousand a little while ago?

Q. You said five million.

A. Five million, that is what I meant, well, sir, I have got to figure.

By the Court:

Q. Sir? A. I have to figure.

By Mr. Butler:

Q. Give it. A. Thirty-six and thirteen ciphers.

Q. What was this—thirteen ciphers? A. Yes, sir.

Q. Just tell us what that is? A. Well—

Q. I can make it out myself but it will take me a long time.

The Court: See what the witness makes it.

Q. Is that what you make it three hundred and sixty trillion corpuscles?

A. I make it, yes, sir.

2048 Judge Helm: Is that the estimate on his own body?

Mr. Butler: That is an estimate of his own, but reduced in proportion to size.

A. Yes, sir.

Q. Do you hold that nitrous acid will not change hemoglobin to methemoglobin?

A. No, sir, I do not.

Q. It is recognized by medical men the world over, is it not, that nitrites taken in the stomach will and do change the hemoglobin to methemoglobin?

A. I think it is recognized that ordinarily it will not, usually it will not.

By the Court:

Q. Will not?

A. Will not change hemoglobin to methemoglobin.

By Mr. Butler:

Q. Then you hold, as a rule, that nitrites do not change?

A. No, sir; I hold that if you add a sufficient amount of nitrite to hemoglobin it will change.

Q. Oh, yes, I see. Well, this methemoglobin is known to medicine and medical men? A. Yes, sir.

Q. And one of the causes of it is the inhalation of gaseous gases like carbon-dioxide? A. I think not.

Q. That will not change the hemoglobin to methemoglobin?

A. I think not.

Q. What will?

A. Why, there are substances like nitrite and chlorate.

Q. What? A. Nitrite and chlorate, acetanilid.

Q. Nitrite, chlorates, acetanilid, is that right?

A. Yes, sir.

Q. What else?

A. Why, I don't know, these are as many as I have in mind.

Q. The best known of which is nitrite?

A. Why, I don't know that [is] is better known than potassium chlorate.

Q. Well, it is best known in connection with this effect—hemoglobin?

A. I don't know that it is.

Q. Is it not true that—historically isn't it the first?

A. I can't tell, I don't know.

2049 Q. Now, let me see, Doctor, you are not a chemist, I gather from what you say? A. No, sir.

Q. But we will say here hemoglobin? A. Yes, sir.

Q. The red corpuscles in the human blood?

A. Yes, sir.

Q. Now, if nitrite re-acting material such as that hemoglobin it will be oxygenated, will it not, and become a methemoglobin?

A. Not unless there is a sufficient amount of it.

Q. Certainly. How much nitrite will it take to change the hemoglobin in one corpuscle of your blood?

A. I don't know how much it takes, but I know that a small amount will not make a change; it requires a certain amount.

Q. How many molecules of nitrite will it take to change one molecule of hemoglobin to methemoglobin?

A. I could not answer.

By the Court:

Q. Sir? A. I could not answer.

By Mr. Butler:

Q. Won't one molecule of nitrites change several of methemoglobin? A. I am not qualified to answer.

Q. No, you don't know about that? A. No, sir.

Q. Now, is it possible that out of this three hundred and sixty trillion red corpuscles—I withdraw that question. The red hemoglobin is associated with the red coloring matter of the red corpuscles? A. Yes, sir.

Q. One per corpuscle?

A. Why, it is not possible to say one per corpuscle, but the hemoglobin is a substance representing the coloring matter of the corpuscle.

Q. Well, now, so that we may have altogether the situation about the case, I have, we will say here, a corpuscle, magnified, of course somewhat, would that be one hemoglobin or more than one individual?

A. You might say there was a certain amount of hemoglobin in each corpuscle.

Q. Might be many, many molecules? A. Yes, sir.

Q. Might be many, many cells, cellular, is it?

A. Each corpuscle is a cell.

Q. Well, I say each red corpuscle is a cell, a single cell?

A. Yes, sir.

2050 Q. And the hemoglobin substance is not cellular?

A. No, sir, you would not call that cellular, it is a part of the cell.

Q. It is a part of the cell, very good. Now, would it be possible, do you think, for you with your spectroscope examin-

ation to have missed any methemoglobin in this three hundred and sixty trillion of red blood corpuscles in your body?

A. The material if it is there would be devised to the blood, and I examined a number of test tubes and I don't think that I would have missed it if it was there.

Mr. Butler: I move to strike out the answer as not responsive to the question.

The Court: The same is stricken out as not responsive.

Q. Please answer me directly and you and I will get along much more rapidly.

A. What is the question, please? I cannot answer as such because I did not examine every molecule.

Q. Very good, we'll let it go. Is not the spectroscope such as you used a very crude test for methemoglobin?

A. No, sir.

Q. It is not? A. No, sir.

Q. What do you understand by the expression "crude test" in the question? A. Well, indefinite.

Q. Well, is it as delicate as the nitrite test?

A. As what nitrite test?

Q. The Griess re-agent of nitrite? A. I don't know.

Q. Well, I will tell you how delicate that is so that you will know, and may assume to be the fact, it will discover nitrites if they exist one part to the billion. Is the spectroscope test which you made for the hemoglobin in yourself as delicate as that?

A. Why, I am not qualified to answer; when you say that I would say that one part in the billion would not give the test, but I am not qualified to answer that.

Q. You are not qualified. How delicate is the test for nitrates known to chemistry? A. I don't know.

Q. In case of death by poisoning by nitrites it always comes from methemoglobinemia, does it not, that is so much of the blood is changed to methemoglobin that it kills—methemoglobinemia? A. What is the question?

2051 Q. I will make another strike at it. The cause of death from nitrites is always methemoglobinemia, isn't it? A. I think that is the principal factor.

Q. So that these nitrites when they kill, kill because they change so much of the hemoglobin to methemoglobin that the blood has not power to carry oxygen to sustain life?

A. Yes, sir, I think that is right, that is the principal factor.

Q. That is the principal factor. What is the other factor, that has been suggested to me?

A. Why, it tends to reduce blood pressure.

Q. Will that kill?

A. If you reduce the blood pressure enough.

Q. What other factor? A. That is all I know of.

Q. So then the tendency of nitrites [—] to reduce blood pressure and poison the blood? A. What is that?

Q. The tendency of nitrites is to reduce the blood pressure and poison the blood, kill the blood?

A. I would say that if enough nitrite comes into the body in contact with the blood it would have that effect.

Q. It will kill. There are reported, are there not, in well known medical publications, especially by Emil G. Beck of Chicago, published in the New York Medical Journal and Philadelphia Medical Journal and Medical News, about a dozen cases? A. I don't know.

Q. Of death by nitrites by changing the blood?

A. I don't know about it.

Q. You don't know about that at all, you are not a toxicologist? A. No, sir.

Q. Not familiar with deaths reported in your profession resulting from nitrites?

A. Why, no sir, I am not familiar with them.

Q. Not familiar with the change of nitrates in the human intestinal tract to nitrites and death resulting? A. No, sir.

Q. Never heard of that, Doctor?

A. No, sir, I have not heard of it.

Q. Never heard that recently the subnitrite of bismuth introduced into the canal for observation by X-rays has been found to be changed to nitrites?

A. No, sir, I have not heard of it.

2052 Q. By bacteria, and kill people?

A. No, sir; I have not heard about that.

Q. You have not heard of cases that are reported by Mr. Beck where subnitrite of bismuth used in diarrhoea in children? A. No, sir.

Q. And killed them by changing to nitrites, haven't heard of these cases? A. No, sir.

Judge Scarritt: We object to that as taking up time, Your Honor; he says he knows nothing about toxicology.

Mr. Butler: I don't know what he is here for.

Judge Scarritt: The jury does if you don't.

By Mr. Butler:

Q. Is it not the well known law of your profession that children are most susceptible to nitrite poisoning due to the administration of bismuth subnitrite?

A. Well, sir, I don't know about that.

Q. You don't know about that, but you do know that nitrites are substances of such character that if they do come

into contact with the human blood they will change the blood to methemoglobin? A. If in sufficient amount.

Q. Certainly, and if in sufficient amount it will so change so much of that blood as to produce synosis, similar to suffocation, similar as it exists in cases of suffocation? A. Yes, sir.

Q. To begin with, reduction of blood pressure causes death, you say? A. Yes, sir.

Q. In sufficient quantity? A. Yes, sir.

Q. Now, then, therefore nitrites when coming into contact with the blood poison and kill the blood to the extent of the quantity that comes into contact with the red corpuscles of the blood? A. No, sir.

Q. It does not. Well, it changes it, you say, to the extent of the quantity? A. No, sir.

Q. Oh, I see, I see. How much does it take to change one corpuscle? A. I could not answer that.

Q. Can you swear as a medical man that a single molecule of nitrite, if it strikes a single molecule of the hemoglobin, will not change it to methoglobin?

2053 A. I can say that we have no evidence that it does.

Mr. Butler: Well, I move to strike that out.

The Court: Yes, sir, that is not an answer.

Judge Scarritt: I object to striking out that answer.

(Question read by the reporter)

The Court: He may answer this question.

A. I would say that it does not.

Q. Will two molecules of nitrites change one molecule of hemoglobin to methemoglobin?

Counsel for claimant objected to the question as mere argument and losing time.

The Court: You may answer.

[Q.] I can't tell with reference to each individual molecule.

Q. Well, can you tell that one molecule of nitrite will not change one molecule of hemoglobin—I thought you couldn't tell that.

A. I say those are the smallest particles that come together.

Q. Yes, why can't they change this, why can't they combine and make methemoglobin?

A. Well, sir, I have examined the blood in such cases and I do not find any methemoglobin.

Q. Did you make the experiment? A. Yes, sir.

Q. When? A. Sometime ago, a couple of months ago.

Q. Are these the experiments you referred to in your direct examination? A. No, sir.

Q. In your experimentation did you ascertain the smallest amount of nitrites that would change one corpuscle of blood from hemoglobin to methemoglobin? A. No, sir, I did not.

Q. It is a chemical re-action, is it not?

A. Why, I think it is regarded as a sort of a chemical re-action.

Q. It is oxygenation, is it not?

A. Yes, sir, I understand it is.

Q. What is comparable with it in the human economy, what else, what other thing?

A. Well, it is simply giving to the hemoglobin more oxygen.

Q. Well, we do that every time we breathe, don't we?

A. Yes, sir.

2054 Q. Does that make it methemoglobin?

A. No, sir, it is the oxygen arranged in some different way.

Q. Is a different quantity now, and made different there?

A. No, sir, not a question of quantity.

Q. Now, isn't it oxygenated in some way? A. No, sir.

Q. As far as chemists have ever determined isn't it this, that the oxygen is held in so deep a grasp when it is changed by nitrites that it will not unload in the tissues to sustain life, whereas when oxygenated in the lung it will unload its oxygen, and isn't that the only difference that has ever been discovered on the subject of that question?

A. It is not a question of where it oxygenated.

Q. What is that?

A. It is not a question of where it oxygenated but it is true, as you say, that it will not give up its oxygen, is the trouble.

Q. Yes, sir, so that it is a straight chemical action exactly as any other chemical action?

A. Well, sir, I am not qualified to answer.

Q. No, I think not; you said it was not. Now, then, so that under the chemical laws you have ascertained in your scientific researches, I have no doubt, are laws which act with certainty?

A. Well, I am not enough of a chemist to say; I presume that many of them doubtless do.

Q. They all do under like circumstances give the conditions so that any man educated in chemistry will know that if he puts nitrite acid on iron it will eat the iron, doesn't he?

A. Well, I would not like to answer that because I am not qualified.

Q. Don't you know that if you put hydrochloric acid on zinc it will make chloride of zinc?

A. No, sir, I don't know that.

Q. Well, are you not familiar with the very simplest elementary chemical re-actions known to the students in the high school? A. Well, sir, I have to state—

Mr. Elliott: I object to this kind of examination of this witness; he has qualified as a pathologist and bacteriologist, not as a chemist, he said he is not a chemist; I don't think it is fair.

2055 Judge Scarritt: Just taking up time.

Mr. Butler: Well, I know, but the trouble is, may it please the court, they might as well put on a theologist to talk about hemoglobin and methemoglobin as a man who does not understand what a chemical action is or chemistry, to the extent that it is taught in the high schools of the country.

The Court: Well, never mind, now, this gentleman is called as a pathologist. While I don't know that I know the difference between a pathologist and a theologist, I don't know whether I do or not, but I suppose both that a pathologist and a theologist would know the elementary rules of chemistry—I don't know whether they do or not—I think we have a right to find out. Go on.

A. Well, sir, I might say that I have had chemistry and I know something about chemistry, but I don't care to answer any definite action about a definite reaction because it has been so long since I have had it.

Q. I know, but I don't want any involved chemistry, but what I do want is this, when oxygen combines with iron it makes oxide of iron, doesn't it?

A. Yes, sir, I think that is right, but I am not going to answer some of those questions because I don't know about definite chemical re-action.

Q. No, but I say, unless the chemical laws were certain there would be no chemistry, there would be no science at all, would there?

Judge Scarritt: I object to that as mere argument, taking up time.

The Court: He may answer.

A. I say as I did before, that I regard that many of the chemical laws are certain and definite.

Q. Certain medicines which are administered—you know about medicine, do you? A. Yes, sir, something about it.

Q. You are not a specialist in that line, I understand?

A. No, sir.

Q. Not a practitioner? A. No, sir.

2056 Q. But it is well known, is it not, that medicines given to people act chemically sometimes?

A. Sometimes act chemically, yes, sir.

Q. And the action is immediate, direct and certain, depending upon the quantity administered?

A. No, sir, not necessarily on the quantity administered.

Q. But nitrites do, you say, depends upon the quantity administered? A. No, sir.

Q. No, I am glad to know that, so then in one case a minute amount of nitrite might work out injury, where in another case it would take a large amount?

A. No, sir; I would say that a minute amount comparatively would not.

Q. I mean relative? A. Yes, relative.

Q. Don't you think you might kill a baby with a very small amount of nitrite? A. No, sir.

Q. You think not. Can you kill a baby with nitrite?

A. Yes, sir.

Q. It is a poison, isn't it? A. Nitrite?

Q. Yes, sir. A. Taken in sufficient amount.

Q. Amyl nitrite is one of the deadly poisons, isn't it?

A. In sufficient amount.

Q. Well, you have to take every deadly poison in sufficient amount don't you? A. Yes, sir.

Q. Isn't any substance which [is] a quantity of less than sixty grains is poison—

Mr. Elliott: If Your Honor please, I object to that. This gentleman is not a toxicologist. We will give the gentleman witnesses who can answer these questions. This witness has testified to two experiments that he made for the purpose of examining the blood; he tested the blood for a certain purpose; if you want to ask him anything about that, I have not the slightest objection.

The Court: Just a moment. I don't want to quote this witness wrongfully, but I understood this witness to
2057 say that the power of resistance by anything, by any animal life, including the person, was measured by the avoirdupois, and that is what I understood, that he thinks the one hundred and fifty pound man compared with a white rat; I don't know anything about that; well, now, it seems to me that they have a right to go into that, which would be harmful to a baby perhaps fifteen or twenty pounds weight, if that is the way this witness gets at it by avoirdupois; of course I never heard of that before, but perhaps the witness it right.

Mr. Elliott: It was not a question of resistance, it is the simple easy way of determining relative amounts that they gave to these animals.

The Court: I never heard of that before, that a man's strength, power of resistance was in proportion to his avoirdupois; maybe he is right, I understood him to say.

Mr. Elliott: He didn't say that.

The Court: I was glad to know I was the best man, physically in the room.

Mr. Elliott: He said he meant to give it comparable to giving a certain amount of a certain weight compared with a rat.

By the Court:

Q. This white rat weighed about what?

A. Hundred and fifty grams.

By the Court:

Q. How much is that?

Mr. Butler: About a pound.

Witness: No, sir.

By Mr. Butler:

Q. Five ounces?

By the Court:

Q. One-third of a pound? A. One-third of a pound.

By Mr. Butler:

Q. And a ten months' Baby would weigh about what?

A. About sixteen to eighteen pounds, twenty pounds.

Q. Is the power of resistance in a rat to a poison—to nitrates such as are found in decaying foods and decaying meats, equal or greater than that of a baby?

Mr. Elliott: I object to that as not proper cross-examination.

2058 The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

[Q.] I couldn't say; I am not qualified to answer. I understand that there is some difference in the question of the reaction to different kinds of tissues.

Q. That is within the field of your specialty, isn't it?

A. No, sir.

Q. Very well; I can't seem to find anything that is. You are a pathologist? A. Yes, sir.

Q. That has to do with disease? A. Yes, sir.

Q. And causes of disease? A. Yes, sir.

Q. Well, now, I am after a cause of sickness; is it a cause of sickness; pathology has to do with the cause of sickness?

A. Yes, sir.

Q. All right. Now, let me see, is there any relation between a rat weighing five ounces and a baby weighing ten pounds as to who could stand the most nitrites such as you would find in decaying impure and adulterated foods?

A. That is really a question that belongs to the toxicologist.

Q. Oh. A. Toxicologist and pharmacologist.

Q. So your science would not have to do with sickness of babies caused by taking adulterated, impure and nitrite bearing foods? A. No, sir, not as such.

Q. I see. Now, this experiment that you made relates wholly to the field of physiological chemistry, does it not?

A. No, sir; I have charge of a clinical laboratory.

Q. I am not speaking what you have charge of; I am asking you if the study or change of the blood corpuscles when chemicals are used, does not relate to physiological chemistry?

A. Yes, sir, it does.

Q. Are you a physiological chemist?

A. No, sir, I am not.

Q. Did you ever in your life discover hemoglobin in living blood? A. I have.

Q. When? A. So many times that—

2059 Q. Whose blood?

A. My own and a great many others.

Q. What produced it? A. Produced the hemoglobin?

Q. Yes, sir.

A. Well, I am not qualified to answer.

Q. The methomoglobin, I misspoke myself.

A. No, I never found out.

Q. You never saw methomoglobin, did you?

A. Yes, sir, I have.

Q. Where?

A. Why, in handling a large amount of chemicals.

Q. But I mean ever taken any from the living blood stream?

A. No, sir, I have not.

Q. You have any blood shaken up in a freezer?

A. Yes, sir.

Q. And you have found out that nitrites will do that, haven't you? A. Yes, sir, I have.

Q. That is well understood, isn't it? A. Yes, sir.

Q. And it will change it to alkali color, won't it?

A. Yes, sir.

Q. Were you here when that was done here in this trial?

A. No, sir.

Q. So, then, in all your life as a scientist you never did discover by the means of the spectroscope or anything else any methemoglobin in blood taken from the living blood stream?

A. No, sir, I have not.

Q. Now, that has been done, has it, in the world?

A. I think so.

Q. Men acquired in that skill in ascertaining how to do that?

A. It is not a question of skill, it is simply a question of whether it is there or not.

Q. So that any juryman could take your spectroscope and apply himself and tell us there was one hemoglobin in one corpuscle changed, just as well as you could?

A. No, when I said it is not a matter of skill, I meant a man could see a methemoglobin in a test tube prepared and also see it in the blood.

Q. Oh, that is it. Is there any substance in the world which taken by the stomach will produce methemoglobin?

A. That will produce it?

Q. Yes. A. I don't know of any.

Q. Nitrites will not, taken by the stomach in any quantities?

2060 A. Well, I suppose in a very large dose it will, but I don't know of any.

Q. How big a dose would you need for a baby six months old that had a little gruel made out of flour?

A. Well, sir, I don't know.

Q. Would be pretty small compared with what it would take to produce it in you? A. In me?

Q. Yes.

A. I would say comparatively, compared to the size, no, I would not say that.

Q. Take more in a baby compared to the size?

A. Why, the baby has less blood than an adult, so I think that is right, depending on the size it would take less than an adult.

Q. Yes, sir, depending on the volume of the blood the same.

A. It requires a certain amount—if I may answer in this way—it requires a certain amount to produce the methemoglobin quantitatively, and if there is less blood to act on necessarily it would be more dilute, I mean more concentrated.

Q. I see. You don't think it takes very many, you say when the contact is made you don't think it takes very many molecules of nitrites, like amyl nitrite?

A. Well, sir, I couldn't answer that.

Q. No, you don't know about that, do you? A. No, sir.

Q. Well, now, not knowing Doctor, about that, don't you think it would be very poor policy to put in a baby's food some nitrites?

Counsel for claimant objected to that as calling for a mere conclusion of the witness, invading the province of the jury.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. Don't you think it would be a poor policy to put nitrites in baby's food regularly so the mother could not keep it out. I ask you if it would not be poor policy to purposely add nitrites like amyl nitrite, for example, to a baby's foods regularly and habitually and to such an extent that neither baby nor parent could avoid giving the nitrite carrying food to the baby? That, I think, is within the fields of pathology.

2061 Counsel for claimant objected to the question as incompetent, irrelevant and immaterial; invading the province of the jury and a wrongful conclusion of the witness because there is no amyl nitrite in this flour, improper cross-examination, and simply for the purpose of prejudicing the jury.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. I want to know what he thinks is good to raise babies on.

A. Well, sir, I would say it depends entirely on what the effect would be on the baby, before I could answer.

Q. Yes, I know, now, let me see that question, so you understood my question this way, did you, whether—you understood me to ask you as a pathologist whether or not you didn't think it would be bad policy to add nitrites, as for example, amyl nitrite, to babies' foods regularly: You understood that to be my question? A. Yes, sir.

Q. And you answered that question, Dr. Albert, by saying to this jury that that would depend upon how it affected the baby? A. Yes, sir.

Q. Well, now, isn't that true of all foods and substances?

A. What do you mean?

Q. That whether you could give them or not would depend how they affected the baby?

A. I would say so, in a general way, yes, sir.

Q. And is that as much light as you can give us on the subject? A. Yes, sir.

Q. So you could not differentiate between any two substances?

A. Well, I don't hardly understand what you mean; I say that it is, in a general way.

Q. Well, how about prussic acid, let's see—is hydrocyanic acid and prussic acid the same, Dr. Albert?

(No answer.)

Q. Now, would it be a good thing—

Counsel for the claimant objected to that question.

The Court: Go on.

2062 Q. Now, can you tell us whether or not it would be good for the baby if there were added to it regularly, every day added to its food a little hydrocyanic acid?

A. I would answer it in the same way.

The Court: Answer it.

A. I answer it in the same way; it would depend entirely on the effect it has on the baby.

Q. Strychnine? A. I say the same thing.

Q. Nicotine? A. I say the same thing.

Q. Cigar ashes in its milk? A. Yes, sir.

Q. Watch for the effect upon the body. Corrosive sublimate?

Counsel for claimant made the same objection as last above.

A. I would say the same thing. I am not saying to any particular baby, I don't know.

Q. You would not do that to mine if I saw you first, I tell you that.

The Court: Go on.

Judge Helm: You are proposing to do it.

By Mr. Butler:

Q. Now, can you tell us whether it would be wise, from the standpoint of the health of the baby to give it a little corrosive sublimate with every meal?

Same objection by counsel for claimant.

The Court: You may answer.

A. I would say the same thing.

Q. That would depend upon the effect upon the baby?

A. Yes, sir.

Q. Are you a married gentleman? A. Yes, sir.

Q. Have you any babies? A. No, sir.

Q. You don't treat any people's babies, do you?

A. No, sir.

Q. Then, as a scientist and pathologist you teach medical men? A. Medical students.

Q. Medical students come to you for learning, and you would not be able to tell them whether corrosive sublimate was bad in babies' foods until you tried it on babies?

A. Well, sir, I don't teach that subject so I would not.

Q. But you couldn't tell them as a pathologist?

A. No, sir. I could not.

2063 Q. Well, don't you know that corrosive sublimate in minute quantities and solutions is used to destroy life every day and every hour by every nurse, mother, and medical man now practicing, don't you know that?

Same objection by counsel for claimant.

The Court: He may answer.

A. The question of minute quantities is mentioned, I would say in minute quantity, as I might understand it, I would say no; but if it is in large quantities it would.

Q. Don't you know that little tablets dissolved in basins of water are used every time there is a wound to cleanse, before dressing, to cleanse the instruments, to cleanse the hands, to destroy the germ life, the effect of the wounds, don't you know that? A. I know it is used for some of these things.

Q. And used habitually and daily by nurses and medical men the world over? A. By some it is used.

Q. And generally, isn't it?

A. Why, a great many don't use it.

Q. Yes.

Judge Scarritt: What has corrosive sublimate got to do with this case? I object to this in the interest of time, I want to save time; here is the place to save time.

The Court: Yes, but this witness is dealing in this quantitative theory.

Judge Scarritt: He is not dealing in this at all.

The Court: Well, in poisons.

Mr. Butler: He said seven grains won't change any blood, we will find out.

The Court: Go on.

Mr. Butler: I will find out whether or not there are substances which will injure blood before I get through, even by this witness.

The Court: Go on.

Q. Now, you may answer the question.

A. What is the question, please? My only reason for modifying is they do not use it for cleansing instruments; your general question is all right; I say yes.

Q. Now, as a matter of fact, because it is so poisonous or destructive of all forms of life?

A. That is the reason they use it.

2064 Q. And it is so intensely poisonous that they have been trying for years to find a substitute, and the use of it is becoming less? A. Yes, sir.

Q. In fact, now, that is true, isn't it, dilute it as you may, the stuff is so poisonous that they are trying to use alcohol and other substances in its place?

A. I wouldn't say dilute it as you may.

Q. Well, I know, as a practical matter?

A. It requires a certain amount before it will kill.

Q. Now, then, I want to ask you, Doctor, again if you still affirm that such dilution of that kind of stuff may be added to the baby's food daily, nightly, uniformly, so the baby must take some of it, and that you can't tell us whether it would be a good thing or a bad thing for the baby; do you say that?

Same objection by counsel for claimant.

The Court: Let him answer.

To which ruling of the court claimant then and there duly excepted.

A. You say if I still affirm—I would like to hear that question.

The Court: Now, Mr. Witness, this takes up a whole lot of time to have the question read every time. I do wish you witnesses would listen and then answer the question.

(Question read by the reporter.)

Judge Scarritt: You are speaking of corrosive sublimate?

A. Yes, I would say that I couldn't tell.

The Court: Well, that answers it, that is enough for that; he says he can't tell.

Mr. Butler: Yes, sir, that is all.

Q. Now, one more question, is not the reaction which takes place in the blood, the hemoglobin is changed to methemoglobin, a chemical re-action exactly comparable as far as the ques-

tion of whether or not it is a chemical re-action is concerned, with carbon monoxide-blood and with cyan-hemoglobin?

A. I rather think it is, but I wouldn't say definitely.

2065 Q. Well, now, Doctor, is it not the learning of your profession that carbon-monoxide blood is a result of definite, well known chemical re-action?

A. I understand [it] definite chemical reactions are not known, and it is regarded as a sort of a chemical re-action.

Q. It is regarded as a sort of chemical re-action, the details—the re-action of which may not be written out, is that it? A. I think that is right.

Q. Well, now, that is the monoxide blood results from inhaling illuminating gas, which is made from tar in part and contains carbon monoxide? A. Yes, sir.

Q. That is a well poison of the blood, isn't it?

A. Yes, sir.

Q. That takes place when people are asphyxiated?

A. Asphyxiated in that manner.

Q. I mean not only asphyxiated by poison by the methemoglobin that is entered in there. A. Yes, sir.

Q. Now, what produces the cyanosis?

A. I could not answer.

Q. Isn't it our old friend hydrocyanic acid, the prussic acid?

A. I believe it is, but I am not qualified to answer that.

Q. Now, does not pathology have to do with that?

A. No, sir.

Q. Nor does it have to do with baby foods?

A. Why, it has no—not the ordinary baby food, no, sir.

Q. And the health of babies?

A. Well, it has to do with the health of babies.

Q. Has nothing to do with chemistry?

A. Has to do with certain offices of chemistry.

Q. Does a pathologist need to know the principles of chemistry? A. He needs to know something about chemistry.

Q. Is this a fair statement of your position with respect to the effect upon babies and other members of the human family, of substances, that you are unable to affirm that any substance in any particular quantity would be injurious until you had observed symptomatic results of the administration of the thing in question or under suspicion?

A. Yes, sir; I would say that is right.

2066 Q. So that no drinking water should be prohibited as injurious unless you could observe symptoms in the person's drinking it within a proper time after he drank the water?

A. I would say the symptoms are some evidence of harm.

Q. So then no amount of nitrites in water would condemn it unless you find people who were made sick or killed by it, or impaired in health? A. Why, I say that is true.

Q. And so it would be safe to feed to the babies and children of Kansas City decaying vegetables and you would not prohibit that until you saw that the babies were affected injuriously by it?

A. Why, I will answer in this way, if—

Q. Can't you answer it affirmatively or negatively?

A. I don't think I can.

Q. Why? Answer it in your own way now and tell us why you cannot say yes or no to that?

A. Whether if I prohibited the use of decaying food?

Q. Yes, nitrite bearing food?

A. I would say I would prohibit the use of decaying food.

Q. Because it is bad and known to be bad, isn't it?

A. Yes, sir.

Q. That is true? A. Yes, sir, in sufficient amount.

Q. Well, I know, but if you could get fresh foods that had not decayed at all, would you use foods that had decayed at all?

A. I prefer the food that had not decayed.

Q. On account of the health of the people? A. Yes, sir.

Q. Now that is the ABC of your profession, isn't it?

A. Yes, sir, that is all right.

Q. And these decaying foods, you know, produce these nitrites, don't you?

A. Some of the decaying foods produce nitrites, but that is not the reason they are harmful.

Mr. Butler: I move to strike out what he says.

Mr. Elliott: I think that is entirely proper.

The Court: Yes, stricken out.

Q. Now decaying foods are harmful for many reasons, are they not?

A. For various reasons, yes, sir.

Q. Nitrite in foods and drinks are harmful, are they not? A. I don't know that they are.

Q. You don't know that. Is corrosive sublimate?

A. I would say I would have to know how strong it is.

Q. Strychnine? A. No, sir, the same thing.

Q. Prussic acid? A. The same way.

Q. Nicotine. A. Yes, sir.

Q. Class them all the same as nitrites?

Counsel for claimant objects to this repetition.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I don't know what you mean by "class them all the same as nitrites."

Q. You cannot understand that question.

A. No, sir, I don't understand what you mean.

Q. When I say whether you class prussic acid and strychnine, nicotine, corrosive sublimate and nitrites the same, when we are considering whether or not an addition of any one of these to food would be injurious, you cannot understand that question.

A. I would say, yes, sir, I would say unless it has been shown that they are harmful.

Q. Yes. A. That I would not say that they were.

Q. So that, doctor—now let me be perfectly fair with you, you say in determining the question that you and I have been talking about, that neither nitrites nor strychnine nor corrosive sublimate, nor prussic acid, nor nicotine, may be said to be injurious to food, if added thereto until it be shown how much?

Counsel for claimant objects to the question as a repetition, and in the interest of time.

Q. Let me finish my question.

The Court: Now gentlemen, all of you lawyers know as well and I guess better than I do that the orderly way is when the question is asked then make an objection as to its competency or its admissibility, or as to their cross-examination;

I cannot conceive of any other legitimate objection that 2068 can be made; then the witness should suspend his answer until the court rules; if the objection is overruled the witness can answer. Now if you will observe these rules we will make progress.

By Mr. Butler: (Resuming)

Q. Now I withdraw that question, and don't answer until Judge Scarritt has an opportunity to object and argue his objection and until the court rules.

Judge Scarritt: I do not want to argue, I have not argued an objection yet.

Q. Now in determining whether or not nitrites are injurious to food if added thereto, do you put nitrites, strychnine, corrosive sublimate and prussic acid in the same class and insist that you must know the quantity of each before you can form an opinion as to whether or not the addition of any one to food as a regular thing three times a day would be proper or not? A. Yes, sir.

Judge Scarritt: I want to object to that as repetition for the fifth time and taking up the time of the court and jury and repeating the question.

The Court: The witness may answer. Now it is not for anybody in this case to complain of consumption of time except myself, because I am not criticising anybody.

Judge Scarritt: I can object in the interest of time.

The Court: I know, and this morning you objected to my convening court at 9 o'clock, and we will not take a recess of five minutes.

By Mr. Butler: (Resuming)

Q. Just one more question, which will be very short. Are you familiar with rattle snake poisoning?

A. Why, no, sir, I would say that I am not; I know that there is rattle snake poisoning but I am not familiar with it.

Q. I have heard the rattle snake bite will probably kill—may I go on—I did not observe that the Judge was not here. Is it within your knowledge that the rattle snake bite will probably kill a human being.

2069 Judge Scarritt: I object to that as incompetent, irrelevant, immaterial and nothing to do with the issues in this case, consuming time.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. Now I tell you it may.

Q. Is it within your knowledge that it will probably be harmless to a hog?

Same objection.

A. No, sir.

By the Court:

Q. Sir? A. No, sir, I said.

Q. Is it your understanding that a rattle snake will kill a hog? A. No, sir.

Same objection by claimant.

By the Court:

Q. Sir? A. No, sir.

Q. Well, you will not say you don't know?

A. I said it is not within my knowledge, I don't know.

Q. You don't know anything about that? A. No, sir.

Q. If you were to find a single germ so small that it would require a microscope of the highest power to discover it, the minutest ever identified, but that it is identified as a typhoid germ would you have to wait until somebody got typhoid fever from drinking the water which contained it, before you would know that it was bad to give babies to drink?

Same objection by claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. You mean that germ in that water?

Q. Yes.

A. I would say generally I know that from past experience if the water contains the germs, it is liable to produce typhoid fever.

Q. One germ? A. No, sir.

2070 Q. That was never demonstrated was it?

A. No, sir.

Q. But if you find one germ in a source of water, one typhoid germ, just one, microscopically, you would warn all people from the spring as you would warn them from a place of pestilence, wouldn't you?

Same objection by claimant.

The Court: Objection overruled; he may answer.

To which ruling of the court claimant then and there duly excepted.

A. I would warn them, yes sir.

Q. And yet it has never been shown that one germ ever gave anybody the typhoid fever?

A. Then I would have to explain now—

Q. Well, has it been so shown? A. No, sir.

The Court: He wants to explain.

A. I want to explain that if I knew that there was a single germ I would warn people because there probably would be other germs.

Q. That is right, but suppose there wasn't any other germs.

A. And also because germs keep multiplying and from one germ there may be a large number produced.

Q. Suppose we have demonstrated there was only one germ, tell people to take it, would you?

A. No, sir, I would not.

Q. You would tell them not to, wouldn't you?

A. Yes.

Q. Even if it was proved there was but one and you needed a microscope to see it? A. Yes, sir.

Q. And yet it is well known, is it not, that the human system eliminates without injury, without observable injury, to it, typhoid germs by the million?

A. Yes, sir, that is true, not by the million I would not say.

Q. Well, it is well known that the springs of water which give typhoid fever to some people does not give it to others who are using it?

A. Yes, sir, that is true.

Q. And that is demonstrated, is it not? A. Yes, sir.

Q. That the germs go through harmlessly?

A. Yes, sir, that it could go through harmlessly.

2071 Q. When it may reveal the cause of the danger of the nearly microscopic germ, that is a poisonous germ, isn't it?

A. I would not call it a poisonous germ; I would say a disease producing germ.

Q. It is a poisonous germ, isn't it?

A. Not necessarily.

Q. Well, call it what we will then, it is not non-poisonous?

A. No, you could not call it non-poisonous.

Q. So that because of the danger of that infinitesimal, unweighable, unmeasurable amount of that terrible germ, you would warn every person who would take your advice to keep out of him if he could, wouldn't you?

A. Yes, sir, I would.

Q. And a drop, a single drop of prussic acid upon the tongue of a baby would probably be as fatal to the child as a stilletto through the heart?

Same objection by claimant; objection by the court overruled; to which ruling claimant then and there duly excepted.

A. I am not qualified to answer.

Q. You don't know? A. No, sir.

Q. Don't you know that the fumes of prussic acid are so deadly that chemists, teachers of chemistry, very often on account of the danger decline to permit their students to handle it? Don't you know that?

Same objection by claimant;

Objection overruled.

To which ruling of the court claimant then and there duly excepted.

A. I don't know that; I know that enough of the fumes are deadly but I don't know whether they decline to have them work with it.

Q. Doesn't every teacher of chemistry warn the green students of the deadliness of that stuff?

Same objection.

The Court: He may answer.

A. I think he does.

Q. In any amount?

A. I don't know, he warns them, a man with the experiments for the first time.

Q. He does not wait until some of his class are prostrated by the poison, does he? A. No, sir.

2072 Same objection.

Q. He does not wait until he can see some symptoms upon his class does he? A. No, sir.

Q. If a rattle snake was produced here in court you think he ought to be killed before he bit anybody, don't you?

Same objection.

The Court: He may answer.

A. I would think so.

Q. You would not have to wait to find out how much it was, to find out whether that creature was poisonous or not?

A. No, sir.

Q. You would know he was poisonous, wouldn't you, and you know strychnine is poisonous, and you know corrosive sublimate is poisonous and you know all these things we have been talking about are poisonous, amyl-nitrite and the rest, don't you?

A. I would say that they are poisonous in certain quantities.

Q. You say they are poisonous by nature, don't you, antagonistic to life?

A. Why, in sufficient quantities.

Q. In the minutest quantities? A. No, sir.

Q. Food in the minutest quantities, are they?

A. I would not say that they are food.

Q. Are they ever food?

A. I do not presume that they are regarded as food.

Q. You know they are not, don't you?

A. No, I don't know that they are, I rather think—

Q. You know they are not regarded as food, don't you?

A. I think they are not regarded as food.

Q. Well, you know they are regarded by humanity the world over as poisonous, don't you?

Same objection.

Q. And that they are as poisonous, as a warning, as a danger, wherever you buy them, wherever you see them, you warn your pupils against them, won't leave them about the house, afraid somebody might take too much, the very strongest regulation, afraid they might kill people, these things
2073 are poisonous, aren't they?

A. They are poisonous in sufficient quantities.

Q. Is flour poisonous, have you got that in your head yet, have you found out that flour is poison yet?

A. Well, I am not hardly qualified to answer in toxicology.

Q. Is a car load of bleached flour a poison?

A. Why, as I look at it, not as a toxicologist, I would say no.

Q. Is it if it is unbleached? A. I would say no.

Q. Never poisonous then?

A. I would not regard it as such.

Q. No, nor anybody else.

Redirect Examination

By Mr. Elliott:

Q. Dr. Albert, isn't it a well known fact that germs multiply and multiply rapidly? A. Yes, sir, it is.

Q. You understand that as to any of these substances that Mr. Butler has been asking you about, that they increase and multiply when you take them into your system?

A. No, sir, I do not.

Q. I will ask you in the case of decayed fruit, when you said that you would avoid the use of decayed fruit, if you intended your answer to mean that you would avoid the use of them on account of any nitrite contained? A. No, sir.

Q. I will ask you if what occurs in the test tube when you produce met-hemoglobin, is in your judgment any criterion of what occurs when you take amounts of nitrites such as you took internally?

A. I would say that if it enters the blood it is.

Q. Yes, the amounts you tested your own blood and did not find any nitrites? A. Yes, sir.

Q. I say now, is what occurs in the test tube, blood outside of the body a criterion then as to what occurs when you take nitrites internally?

A. Well, I don't think I understand your question.

Q. Well, suppose, for instance, you added three grains of sodium nitrite to a certain amount of blood in the test tube, outside of blood, you had taken ox blood we'll say, and you got met-hemoglobin? A. Yes, sir.

2074 Q. In your judgment does it necessarily follow, if you take three grains of nitrites internally that you will get methemoglobin in the blood? A. No, sir.

Q. Is the spectroscope the most delicate instrument known for detecting the presence of methemoglobin in the blood?

A. Yes, sir.

Q. That is all.

Recross-Examination

By Mr. Butler:

Q. Now because germs multiply they are dangerous?

A. Why, they are more dangerous than if they would not multiply.

Q. All right. Now let see, with nitrites such as are in flour, say if they will multiply, sometimes certain substances which are denominated poisons, are referred to as having this, that or the other degree of toxicity, is that right?

A. I think that is right yes sir.

Q. You know that is so, the toxicity of prussic acid might be one figure or represented by one figure, of corrosive sublimate by another, am I right?

A. Why, I don't know whether toxicologists say that may be or not.

Q. Is it within your knowledge that morphine is a poison sometimes in big doses, or little doses, or appropriate quantities? A. In sufficient doses.

Q. People use it to commit suicide sometimes, don't they?

A. Yes, sir, I guess they do once in a while.

Q. You have heard of that in your business?

A. Why, yes.

Q. It is used as a medicine too, is it not? A. Yes, sir.

Q. It allays suffering and pain? A. Yes, sir.

Q. It comes from the poppy, doesn't it? A. Yes, sir.

Q. Beautiful little flower that we see around the garden?

A. Yes, sir.

Q. It is a dangerous thing, isn't it? A. Morphine?

Q. Yes. A. In certain quantities.

Q. Yes, but it is dangerous because of the effect that it produces you want more and more and more?

2075 A. Why, I would say in sufficient quantities it is a dangerous thing.

The Court: That is not the question.

Q. Is not the morphine habit the worst thing in the world that you know of? A. I couldn't say that it is.

Q. Do you know of a substance called apo-morphine?

A. Yes, sir.

Q. That is the ordinary morphine with one molecule of water taken out, isn't it? A. I don't know.

Q. Now that is a powerful emetic, isn't it? A. Yes, sir.

Q. And one of the best known and commonly used?

A. I think it is.

Q. Now then if you treat morphine with nitrites will not the toxicity that is the degree of poisonousness of the morphine be multiplied?

A. I don't know that it is.

Q. To 600 per cent.

Mr. Elliott: If your Honor please I object to this question as not proper cross-examination, not based on any testimony in this case.

Mr. Butler: The redirect examination brought out that the typhoid germ might multiply. I am going to find out that these nitrites will multiply the toxicity of other things, if he knows I will.

A. I don't know.

The Court: He says he don't know.

Q. Now, isn't it well known to medicinal men that treatment of other substances may, and very often does, increase the toxicity of one or the other or both?

Same objection by claimant.

The Court: You may answer.

A. I don't think it is.

Q. Why, isn't it laid down everywhere that that is true?

A. I don't think so.

Q. You never heard of the toxicity of substances being affected by treatment in any way?

A. I don't remember now that I have heard it.

2076 Q. Well, now, will you undertake to say that it is not true that the toxicity of apo-morphine used for emetic will be increased 2,000 per cent by nitrites such as are in the bread made from bleached flour?

Same objection.

The Court: He may answer.

A. I wouldn't say; I don't know.

The Court: He says he doesn't know, no use pursuing that.

Mr. Elliott: That is all, Dr. Albert.

Charles A. Rex, called as a witness on the part of Claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

By the Court:

Q. What is your name? A. Charles A. Rex.

Q. Where do you live? A. Lexington, Missouri.

By Mr. Elliott:

Q. What is your occupation?

By the Court:

Q. You were sworn, weren't you? A. Yes, sir.

By Mr. Elliott:

Q. What is your occupation, Mr. Rex?

A. Why, I am manager of the Lexington flouring mill four or five years.

The Court: Lexington, Missouri.

A. Lexington, Missouri.

Q. Tell me when you were connected with that mill?

A. In '93.

Q. Up to what time? A. '97.

2077 Q. Up to when? A. The first of May 1907.

Q. 1907—during that time was there an Alsop process machine installed in the mill? A. Yes, sir.

Q. I hand you Claimant's Exhibit 268, a piece of rubber tubing, and ask you if that piece of tubing was one that was placed on the machine when it was installed in that mill?

A. Yes, sir.

Q. Was it on that machine when you left the mill in 1907?

A. Yes, sir.

Q. Now I hand you a piece of pipe which we will have marked "Claimant's Exhibit 269" (which was accordingly done) and ask you if that was a piece of pipe that was connected with the Alsop apparatus when it was installed?

A. Yes, sir, it was a nipple that goes right in the reel.

Q. A nipple that goes right into the reel?

A. Yes, sir, that the air goes through.

Q. And was that on the machine, are you able to state, when you left the mill? A. Yes, sir.

Q. In 1907? A. Yes, sir.

Mr. Elliott: These exhibits are introduced in evidence.

Q. That is all, Mr. Rex.

Cross-Examination

By Mr. Butler:

Q. Are you still with this mill? A. No, sir.

Q. What are you doing?

A. Well, my brother and myself owned a controlling interest in this mill, and we sold it in '7, our interest, for some land in Kansas.

The Court: I can't hear you, Mr. Witness.

Q. You say you and your brother sold something?

A. Sold our interest for some land in Kansas.

By Mr. Butler:

Q. Where did you get these exhibits?

A. Got them out of the mill Friday.

Q. Last Friday?

A. Got them out of the mill Saturday.

2078 Q. Has the mill been running ever since or do you know anything about that? A. Not all the time.

Q. Has it been running any during the last three years?

Mr. Elliott: I will state that I am going to bring in the gentleman who succeeded him, if that will help you any.

The Court: Very well.

Q. Who sent you out there to get these things?

A. Why, I have lived there in town, I went out there to get them.

Q. Who sent you? A. Nobody particular.

The Court: Tell who sent you, if any one?

A. Nobody sent me out to get them, I got them off the machinery and got them Saturday.

By Mr. Butler:

Q. Without anybody telling you to? A. No, sir.

Q. Just thought you would bring those in of your own accord? A. Yes, sir.

Q. That just came in your head; you are not in the milling business? A. No, sir.

Redirect Examination

By Mr. Elliott:

Q. I forgot to ask you, Mr. Rex, how long had that piece of rubber and that piece of pipe been in use when you left the mill?

A. When I left the mill we had had it in there in four, the spring of four, and I left in seven, five, I think, five it was.

Q. It was put in—

A. Put in there in five and I left there in seven.

Q. Well, substantially two years? A. Yes, sir.

Q. It would be a little over two years, wouldn't it?

A. A little over two years.

Recross Examination

By Mr. Butler:

Q. How big a mill is that, any way, what is the capacity of the mill. A. 200 barrels.

Q. How much did it make during the last year you ran it?
A. We increased it and made it a little over 200 barrels.

2079 Q. How much did you put it? A. About 220 barrels.

Q. And the year before that? A. 200 barrels.

Q. And the year before that?

A. Well, it was put in there for 200 barrel mill.

Q. Well, did you run full capacity for each year?

A. No, after we increased it made more.

Q. Well, you ran more than 200 on the average all the time? A. Yes.

Q. How many horse power did you use to make this gas to bleach flour with?

A. I think three and a half horse power dynamo.

Q. Wasn't it five? A. No, sir.

Q. Wasn't it three and a half kilowatts instead of horse power?

A. I ain't no electrician, I don't know nothing about that.

Q. Don't know anything about it; don't know how much nitric acid that made that passed through these pipes?

A. No, sir.

Q. Did you bleach all the time? A. Sir?

O. Did you bleach all the time? A. Yes, sir.

O. Bleach everything? A. Every day.

Q. Labeled it all patent, did you bleach everything?

A. No.

The Court: You don't speak so people can hear you.

A. We just bleached 80 per cent, 85 per cent of it.

Q. Never mixed it in your mill?

A. No, sir, not while I was there.

Q. It spoils low grade flour to bleach it, doesn't it?

A. I don't know, I never bleached any.

Q. You found out that this machine was a kind of machine that will only bleach good flour, did you?

A. No, sir, I did not find that out.

J. F. Forster, called as a witness on the part of claimant, being duly sworn, testified as follows:

2080

Direct Examination

By Mr. Elliott:

By the Court:

Q. You were sworn a while ago by the clerk?

A. Yes, sir.

Q. Where do you live? A. Lexington, Missouri.

By Mr. Elliott:

Q. Did you succeed Mr. Rex at the Lexington Mills?

A. Yes, sir.

Q. I hand you this Claimant's "Exhibit 268" and ask you if you are able to identify it as the piece of tube that was on the —rubber tube that was on the machine when you took charge of the mill? A. Yes, sir.

Q. Now how long have you been in charge of that mill?

A. Since June 1907.

Q. June 1907, and has that rubber tube been on there ever since? A. Yes, sir.

Q. Up to the present time? A. Yes, sir.

Q. I hand you "Claimant's Exhibit 269" and ask you if you are able to identify it as a piece of pipe from the machine that was on it when you took over the mill? A. Yes, sir.

Q. How long has that been on there?

A. Since June 1907.

Q. Up to the present time? A. Yes, sir.

Q. Have you been bleaching flour right along?

A. Every day that it has been running.

Q. Have you ever noticed the effect, Mr. Forster, of new wheat flour by bleaching it?

A. It produces the same effect in baking as old wheat flour; it will make the same kind of biscuit as the old wheat flour biscuit.

Q. Have you ever noticed the color of the gas of this Alsop machine? A. Yes.

Q. What is your opinion as to whether it has color or colorless? A. The gas has no color that I have ever seen.

2081 Q. Has no color. Have you ever noticed any odor to be imparted to flour by bleaching it by this Alsop process? A. No, sir.

Q. Have you ever made comparisons between bread from bleached flour and bread from unbleached flour to see if there was any difference in the taste and smell? A. Yes, sir.

Q. What is your opinion?

A. There is no difference that I could detect.

Q. To what class do you sell your flour?

A. Southern trade, biscuit makers.

By the Court:

Q. Sir?

A. Biscuit trade, southern trade requires a biscuit flour.

Q. What kind of flour? A. A flour that makes biscuits.

By Mr. Elliott:

Q. You grind usually soft wheat flour, I believe?

A. Yes, sir.

Q. Has your trade to your knowledge expressed any preference for one kind of flour produced by you over another and if so state what?

Counsel for Libelant objects to the question as immaterial.

The Court: He may answer.

A. They prefer the bleached flour, the kind I have been giving them.

Mr. Butler: I move to strike it out as not responsive, giving his conclusion.

The Court: That is not responsive.

Q. I just say if they have expressed a preference?

A. They have expressed a preference for the kind of flour I have been giving them which is bleached flour.

Q. Now does your trade know that you give them bleached flour? A. Yes, sir.

Counsel for libelant objects to the question as irrelevant.

The Court: Well, it may stand. We are getting a whole lot of hearsay testimony in here.

Q. What grades of flour do you bleach, Mr. Forster?

A. The best grade.

Q. I will ask you to what extent color of flour is an indication of quality? A. A secondary consideration.

2082 Q. It is what? A. A secondary consideration.

Q. It is a secondary consideration. Well, what would you say were the first considerations then, if I understand you?

A. Why, the baking quality is the first consideration in any flour.

Q. Any other?

A. Well, the texture of the flour it gets, the baking flour.

By the Court:

Q. The what? A. The texture of the flour.

By the Court:

Q. Has the granulation of the flour anything to do with its quality? A. Yes, sir.

By Mr. Elliott: (Resuming)

Q. I believe that is all—just one minute—I will ask you if the balance of the pipes to your knowledge are in the same condition as the pipe that you have shown here?

Mr. Butler: I object to that as not the best evidence, calling for a conclusion; he ought to have brought them if they are important.

The Court: He may answer.

A. Yes, sir, as far as I know they are in the same condition as that pipe.

The Court: Now, Mr. Witness, is that the best you can do by way of being heard?

Mr. Elliott: Speak louder.

A. So far as I know that is the same as all the rest of the pipes in the mill.

Cross-Examination

By Mr. Butler:

Q. This "Exhibit 269" is a pipe about 5 inches long, and has some threads on each end of it. Since Mr. Elliott handed it to you just now, I have taken a little file that seem to be laying around this court room and scraped out some substance out of it which I have on this paper which we will mark "Government's Exhibit 56" (which was accordingly done).

Do you know what that is? A. Scraped out of there?

2083 Q. Yes. A. Dust out of the pipe.

Q. Did you ever clean out your pipes out there in the years you have been at that mill? A. Yes, sir.

Q. How often? A. Once every six months.

Q. What for?

A. To get the dust out of them.

Q. That is reddish brown dust?

A. Yes, sir, as far as I know.

Q. Is the dust always the same kind of dust as there is in "Exhibit 47" which was taken out of Krites' pipes, isn't it?

Counsel for claimant object to the question as calling for a conclusion.

Q. I will say to you, Mr. Witness, the evidence shows it was taken out of Krites' pipes. I show you some of the dust in 47, that is the kind of stuff you get out of pipes, do you?

A. Not that brown.

Q. Not quite so brown you think? A. No, sir.

Q. A little lighter color, about the same you think as that that I got out of your ppes that you brought into court, did you clean them out since you brought them into court some?

A. No, sir.

Q. Not a bit? A. No, sir.

Q. How much did you get out of your pipe system each six months?

A. I don't clean the pipes myself.

Q. When you go down about 10 or 15 feet of pipe and dust them out?

A. I don't know how much we get out of it.

Q. Do you clean out your drum?

A. No, sir, we have no drum.

Q. You shoot right into the flour direct?

A. Shoot right into the flour.

By the Court:

Q. You have no midway drum? A. No, sir.

Q. No place to delay it at all? A. No, sir.

Q. But notwithstanding that, you have to clean out your pipes every six months?

A. We get the dust that takes up in the agitator 10 or 15 feet back in the agitator.

Q. I see. The wind blows into the agitator, doesn't it?

A. Yes, sir.

Q. This dust backs up against the wind?

A. Yes, sir.

2084 Q. The dust backs up against the wind there?

A. Yes, sir.

Q. Don't smell of this gas ever, do you?

A. No, sir.

Q. The gas on the Alsop bleacher that you have got is odorless?

A. I can't say that it is. I never smelled of it.

Q. Well, in the years that you have been there you have not been able to smell it?

A. Not in the agitator.

Q. Anywhere about the mill?

A. No, sir—yes, I could smell it in the bin, in the flour bins.

Q. I thought you said the flour did not smell of it?

A. Well, the flour I never smelled it on the flour after you go through the packer.

Q. After you go into the room where the flour is you smell it? A. Yes, sir.

Q. And you say therefore the room smells of it but this flour does not? A. Yes, sir.

Q. I see. You cannot smell the gas itself, nor you couldn't see it itself, nor you couldn't smell it on the flour, but you could smell it in the other room where the flour is kept in?

A. Oh no, right in the flour bin before it goes into the sack.

Q. I mean before it is sacked up? A. Yes, sir.

Q. So in other places that flour is you can't smell the gas until you get the flour in sacks and tied up the sacks, is that true?

A. You can only smell just right below the agitator.

Q. As soon as you took it out and tied up the sacks you could not smell any more?

A. No, take it up in your hands you can not smell it any more.

Q. And flour if it is not bleached, begins to change, processes of decay, set in, don't they?

A. No, sir, not necessarily.

By the Court:

Q. I can't hear.

A. No, I don't know that it decays.

Q. You don't, doesn't it begin to change right off?

A. Yes, sir.

Q. Well, that is the process of decay, isn't it, keeps on going until it is no good, full of bugs and weevils and everything?

A. Yes, sir, if it is not taken care of.

Q. And by this bleaching process you can change it
2085 in a few seconds such as nature will change it in a long time, in months? A. Yes, sir.

By the Court:

Q. Sir? A. Yes, sir.

By Mr. Butler:

Q. Make it taste the same as three months' decay of wheat?

Mr. Elliott: I object to that, Your Honor, no one has given any such testimony that three months causes flour to decay.

The Court: Go on.

Q. This decomposition that goes on in everything makes flour taste better, makes biscuits taste better, until it gets to certain point?

Mr. Elliott: That I object to because this witness is not a chemist and does not know anything about decomposition.

The Court: He may answer it.

A. Flour that is left in a warehouse for a time improves in baking quality.

Q. Yes, yes, and it keeps on improving for a certain time and after that goes down the hill?

A. No, not necessarily.

By the Court:

Q. What? A. No, sir, not necessarily.

Q. Flour will keep indefinitely unbleached?

A. Yes, sir, if it is kept clear, that is bugs or anything like that, if you take care of it, won't get bugs in it.

Q. Good for ten years, is it?

A. If it is well kept, yes, sir.

Q. Did you ever keep any for ten years? A. No, sir.

Q. Or for five? A. No, sir.

Q. Or three? A. No, sir.

Q. Or four or two?

A. I know of them that have, yes, sir.

Q. Did you ever keep any for two years?

A. No, sir.

Q. Why don't you know that the life of flour is probably less than a year, as a commercial matter? A. No, sir.

Q. How long is the life of flour, as a commercial matter?

A. I don't know, I never keep any flour on hand for any length of time.

Q. Are you the man who personally cleaned out these pipes? A. No, sir.

2086 Q. Have you seen them cleaned out? A. Yes, sir.

Q. How many times? A. Two or three times.

Q. What is this stuff in this which is removed, this black stuff? A. I don't know what it is.

Q. Is that dust from the agitator too?

A. That is the pipe that comes right off from the machine.

Q. I know, but this black stuff, that is as black as any-thing, on the inside of that, what is it?

A. I don't know what it is.

By the Court:

Q. Where did that come from—from the electrifier?

A. Yes, sir, right next to the electrifier.

Q. And the pipe from there to the agitator is a galvanized pipe? A. Galvanized iron pipe.

By Mr. Butler:

Q. What made that rubber there break in two?

A. The heat, I presume.

Q. You see that it is black and ruined, don't you?

A. Yes, sir.

Q. What is that? A. Yes, sir.

Q. That pipe was cleaned out before it was brought to this court, wasn't it? A. No, sir.

Q. What are these marks running down through it?

A. I haven't noticed any marks.

Q. Now, let me see, Mister,—your name has gone from me— A. Forster.

Q. That pipe was covering metal down to where my finger is, to that end, wasn't it?

A. Yes, sir, there is a mark of the clamp.

Q. And on the other end it was covering metal down as far, down to where my other thumb is, wasn't it?

A. No, sir, no, that hose is four or five feet long.

Q. Why didn't you bring it all in?

A. Because they cut it off, whoever took it off, I didn't bring that in.

Q. Oh, I see, I see it is only a piece of the hose that was used? A. That is part of the hose.

Q. And it was cut in two for the purpose of bringing it to court? A. Evidently, yes, sir.

Q. Who did that?

A. Mr. Rex got it off the machine, I think.

2087 Q. Who got you to come down; did you just come down of your own accord? A. I volunteered, yes, sir.

Q. Just volunteered. Now, can you go back and bring back the other piece of that hose? A. Yes, sir.

Q. Will you volunteer to do it?

A. Why, yes, sir, if I can in time.

Q. Will you do it by my request, go back and bring back the rest of the hose? A. No, sir.

By the Court:

Q. Can't you telephone down for it?

A. Yes, sir. I could telephone for it.

By the Court:

Q. Send it up by express, or some other convenient way?

A. It will come up tonight or tomorrow.

By Mr. Butler:

Q. All right. Just mark it with your name. Wasn't there any piece of pipe longer than this five-inch pipe to bring along? A. Yes, sir, that is a part of it.

Q. Isn't there any more, that is most all covered with scars? A. That is the nipple connecting the agitator.

Q. How many agitators have you? A. Two.

Q. And this only took part of the gas that went through the mill? A. No, sir, we only use one.

Q. You only use one; what do you have the other one in for? A. Put in there, we get it when we get the two.

Q. You don't bleach anything but your best grades either, do you? A. No, sir.

Q. This nipple was off of the one that you use or off the one you don't use? A. I don't know.

Q. That is all.

Redirect Examination

By Mr. Elliott:

Q. Mr. Forster, is this Alsop installation a closed system, as it were, from electrifier to the agitator? A. Yes, sir.

Q. That is, any gas, or whatever it is produced from,
2088 goes through pipes? A. Yes, sir.

Q. To the agitator? A. Yes, sir.

Q. So that if there was any smell to the gas ordinarily, or as a fact, you would not be able to detect it until you get it down in the flour bin? [Q]. Not unless exposed to the air.

Q. And unless you get to it, unless you open the agitator, open some part of the machine? A. Open the pipe some place.

Recross Examination

By Mr. Butler:

Q. And so you couldn't see it either until you open it?

A. No, sir, you couldn't see the gas.

Q. Therefore you say it is invisible because it is in the pipe? A. I never did see the gas.

A. And therefore you testify that it was invisible gas because it was in the pipe?

A. No, it is invisible in the flour mill, you can smell it, but you can't see it.

Q. You mean after it goes through the agitator and after it has bleached the flour and after it has gone down into the flour bin it is then invisible?

A. That is the only place you know.

Q. It is invisible in the dust of the flour?

A. Oh, yes, I should think it would be.

Dr. Albert W. Rockwood, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. What is your name? A. Albert W. Rockwood.

2089 Q. Where do you reside? A. Iowa City, Iowa.

Q. What is your occupation or profession?

A. I am professor of chemistry and toxicology in the University of Iowa, head of the department of chemistry.

Q. I will ask you, Doctor, to state your qualifications as a chemist and toxicologist.

A. Graduate Amhurst College where I studied chemistry. After that a student at Leipsic, Gottingen, Strasburg, Germany; Hale University I received the degree of Ph. D. for work on chemistry; and have been for over twenty years instructing in the University of Iowa.

Q. Have you made some investigations, Doctor, in reference to the subject of flour bleaching?

A. Not the bleaching process.

Q. No, I mean with bleached flour, I mean.

A. I have made some tests with bleached flour, yes, sir.

Q. Have you made any tests to ascertain as to whether one flour containing a certain amount of nitrite reacting material

is baked into bread with the use of yeast, there is or is not a disappearance of such nitrite re-acting material?

A. I have made some tests in that line.

Q. Will you please tell us what you have done?

A. I first determined the amount of nitrite material in the flour, then had the bread sponge mixed up by the use of yeast in the ordinary way, and after it was raised the usual time tested it for the presence of nitrite re-acting material.

Q. And with what result?

A. Very commonly the nitrite reacting material had disappeared, it was always much reduced, sometimes after the usual time of bread raising a part remained, but on longer standing, a few hours longer standing, they also disappeared.

Q. Now, do I understand that you tested the dough before it was put into the oven?

A. They—might before it was put into the oven.

Q. I will ask you if you have made any experiments to test the relative digestibility of flour, bleached and unbleached? A. I made a number, yes, sir.

Q. And with what constituents of flour have you dealt?

2090 A. I have tested the digestibility of the starch of the flour made by the salivary ferments and the pancreatic ferment; I have tested the digestibility of the gluten of the flour by the pancreatic and the gastric digestion.

Q. Is that the same as pepsin, the gastric?

A. Pepsin hydrochloric acid together, yes, sir.

Q. Now, first I will ask you to tell us, take up the starch, and take a representative experiment, if you have one, and give us some figures as to what you found on the digestibility of starch with saliva?

A. Does that include the method?

Mr. Butler: There never has been any testimony that starch was made indigestible as such.

Mr. Elliott: I don't know whether there is or not.

Mr. Butler: I don't think that there will be any against that introduced; Now, I suggest that perhaps if that is true we need not spend very much time on starch?

Mr. Elliott: Do you concede that the starch is not retarded in its digestion?

Mr. Butler: You have called witnesses on the subject of starch and we have not called any to the contrary, and don't expect to.

The Court: Go on.

By Mr. Elliott:

Q. Go on with the experiments with starch, Doctor, and tell us what you found; first tell us how you performed the experiment.

A. The experiment was performed by boiling up flour with water and then adding to it small quantities of saliva.

Q. Give us the quantities as you go along, Doctor, how much you used of everything.

Mr. Butler: If you intend to call out details let it be complete so I won't have to go over it again.

By Mr. Elliott:

Q. Just give us the details, now, one of these experiments is representative of the other.

A. I will give you such details as I have here; I have not the details in each case of the amount of flour and water that I took, but it was—well, it was from two to ten grams of flour to the liter of water.

2091 Q. Well, now, detail one experiment to us and give us such details as you have. A. And added to this—

Mr. Butler: Well, on the particular one, can he give specific amounts for any particular one?

A. I have here simply the results of speed of digestion.

Q. Well, what we want, can you in any case give us the amount of flour you used and how you made this solution, and everything of that sort?

A. I can say that in one of these, I don't remember which one, there was four grams of flour to a liter of water, that will be included in these results. Then I added to that, I used the bleached flour for one test, the same quantity and unbleached flour treated in the same way for a parallel test.

Q. Let me put it this way: Wherever you made comparison between the bleached and the unbleached did you use the same quantities and amounts and so on?

A. The same amount and quantities, treated it as near as I could possibly do it in the same manner.

Q. All right. Now, you can proceed.

A. Added to the flour solution the same quantity of saliva and a small amount of the solution of iodine, which produces a blue color, the speed of digestion can be determined by the disappearance of this blue color.

Q. That is with the saliva? A. With the saliva.

Q. Now, tell us what was the result of these saliva experiments?

A. The results in general were that the color disappeared with the two kinds of flour in practically the same amount.

Q. Tell us what kind of flour you had there, Dr. Rockwood?

A. Used the Lexington flour.

By the Court:

Q. Lexington, Nebraska?

A. Lexington, Nebraska. There were nitrites in the bleached and there were none in the unbleached.

By the Court:

Q. Used this seized flour?

A. I think it was not a portion of this seized flour.

By Mr. Butler:

Q. How much nitrites?

A. There was .91 of a part per million of nitrite nitrogen.

Q. Both patent flours, the same kind of flour, or different kinds?

2092 A. I asked to have the same kind of flour sent to me; I am not a judge.

Q. Both new or both aged, or one aged and the other new?

A. I cannot certify anything about the grade of the flour.

By Mr. Elliott, resuming:

Q. You obtained flours which you believed to have been the same flours bleached and unbleached; is that correct?

Mr. Butler: I object to what he believed about it.

The Court: This gentleman says he does not know, as I understand him.

By Mr. Elliott:

Q. You received these samples of flour, did you?

A. Yes, sir.

Q. From the Lexington Mill?

A. Lexington Mill & Elevator Company.

Q. Yes, all right. Now, proceed, and how much nitrite re-acting material was in the bleached flour?

A. .91 of a part of nitrite nitrogen.

Q. .91? A. Per million.

Q. It is a little less than one part per million.

A. A little less than one part per million.

Q. Did you ascertain that the unbleached had no nitrite?

A. Had no nitrites in it.

Q. Now, then, you can proceed.

A. The time which was required for this blue color to disappear was practically the same in all cases, that is, with two parallel experiments, one unbleached and the bleached flour were treated in exactly the same way under exactly the same conditions.

Q. Now, with the pancreatic?

A. With the pancreatic the operation was carried on in a similar way with the substitution of the pancreatin which contains the pancreatic ferments for the saliva, and similar results were obtained.

Q. Now, did you make any experiments with regard to the digestibility of the gluten of these flours?

2093 A. I tested the digestibility of the gluten by the pepsin hydrochloric acid, and by the pancreatic ferments.

Q. Now, take the pepsin and give us the result.

A. I tested the gluten in a moist condition uncooked, and I also tested the gluten after I had steamed it dried it and made it with the pepsin hydrochloric acid. Do you want the figures?

Q. Yes, you better give us some figures. Now, this is with pepsin, is it?

A. This is with pepsin, moist gluten.

Q. And moist gluten, all right.

A. Where the digestion was carried on one hour and ten minutes at body temperature, the bleached flour digested 16.6 per cent; the unbleached flour 11.6 per cent. Where it was digested two hours and thirty minutes the bleached flour digested 19.2 per cent. The unbleached flour 14.7 per cent. Where it was digested three hours and thirty five minutes the bleached flour digested 28 per cent and the unbleached flour 26.8 per cent.

By Mr. Butler:

Q. The bleached was more digestible in both cases, very much more?

A. Oh, the bleached was the more digestible.

Q. That is what I say, the bleached?

A. Somewhat more digestible.

Q. Well very much more, isn't it? A. Oh, I don't—

Mr. Elliott: You can ask him that later.

By Mr. Elliott:

Q. Give those figures again, Mr. Rockwood; give us the three times again with the percentage?

A. The whole thing again?

Q. No, just those percentages you gave us.

A. One hour and ten minutes, bleached 13.6, unbleached 11.6. Two hours and thirty minutes, bleached 19.2, unbleached 14.7. Three hours and thirty five minutes, bleached, 28; unbleached 26.6.

Q. Now, did you make any experiments with dry gluten and pepsin? A. Yes, sir.

Q. Give us that.

A. The dry gluten and pepsin, in thirty minutes, the bleached digested 67.3 per cent; the unbleached 62.4 per cent.

2094 By Judge Helm:

Q. That is in twenty minutes?

A. Thirty minutes. In one hour the bleached digested 74.6 per cent; the unbleached 72.1. In two hours the bleached digested 91.7 per cent; the unbleached 89.1.

By Mr. Elliott:

Q. Now, then, as I understand your figures that with the pepsin digestion with moist and dry gluten in both instances your figures show that the bleached flour digested a little—somewhat more rapidly than the unbleached, is that correct?

A. I think it will show that it digested somewhat more completely than the unbleached.

Q. Now, tell us, Dr. Rockwood, what was your means of making the determinations of digestion?

A. I determined the amount of nitrogen and it became soluble in this process, the pepsin and the pancreatic ferments both digest the gluten, which is a nitrogenized substance, and I determined the amount which was flour in solution and the amount which remained in a insoluble form; the soluble nitrogen I call the part which it digested and the insoluble part the part which it had not digested.

Q. Now, how about gluten with the pancreatic digestion? A. That I have given.

Q. I thought that was with pepsin.

A. Well,—oh, you are correct. With the pancreatic digestion with moist gluten digested for one hour the bleached digested 1.7 per cent; the unbleached 2.8 per cent.

Q. That is a little more for the unbleached there, is it?

A. That is a little more for the unbleached. Digested four hours, the bleached digested 10.5 per cent, the unbleached 8.5 per cent.

Q. That is a little more for the bleached?

A. More for the bleached. Digested five hours, 14.5 per cent for the bleached and 11.6 per cent for the unbleached.

By Judge Helm:

Q. How much? A. 14.5; 11.6.

At this point court took a recess until two o'clock P. M.

2095 Pursuant to adjournment, court met at two o'clock, P. M., Tuesday, June 28, 1910, and proceeded with the trial of said cause further as follows:

Albert W. Rockwood, resuming the stand, was examined further by Mr. Elliott, and testified as follows:

Q. Have you made any experiment, testing the digestibility of dried gluten obtained from bleached flour, as compared with dried gluten obtained from unbleached flour? A. I have.

Q. And you can state that experiment?

A. The digestion with the pepsin hydrochloric acid, in thirty minutes the bleached flour, there was 67.3 per cent digested; of the unbleached, 62.4 digested. For one hour the bleached, 74.5 per cent digested, unbleached 72.1 per cent digested. For two hours, the bleached, 91.7 per cent and the unbleached, 81.9.

Q. All those figures show more of the bleached digested. Is that right?

A. Greater digestibility of the bleached, than of the unbleached gluten.

Q. Now, tell us, Doctor, how many experiments of this kind you conducted?

A. With this flour, or with other flour.

Q. I mean digestive experiments, just in round numbers. Did you make just one experiment, or more?

Mr. Butler: You mean with flour, or with wheat?

Mr. Elliott: Flour, or some constituents of flour.

A. These are all separate tests that I have been reading, but I have made others which gave similar results, with other flour.

Q. Now, as a result of your digestion experiments, I want to ask you, what is your opinion as to whether flour that is bleached is injured, as respects the digestibility.

A. I should say it is not injured, as regards digestibility.

Q. We have had testimony here, with reference to 2096 the occurrence of this nitrite reacting material in certain food products. Some of these were of one kind, some of another. Now, I want to ask you if you have made any investigations to determine the presence of nitrite reacting material in country cured meats. A. I have.

Q. Give us the results.

Mr. Butler: What was that?

The Court: Country cured meats.

Mr. Elliott: That is, as cured on the farm.

Mr. Butler: I think I will object to that as immaterial and irrelevant. I do not see how the digestibility of meats would affect the issue here.

Mr. Elliott: I am not talking about the digestion. I said the occurrence of nitrites.

Mr. Butler: Oh, well, does it make any difference whether saltpetre is used out in the country or in town?

Mr. Elliott: If you will listen to the testimony, you will understand.

Mr. Butler: I think it ought to appear that it has some relevancy to the case.

The Court: I don't know whether they cured it with dry chips, or dry bark, or corn cobs, or what.

By Mr. Elliott:

Q. What kind of meats did you obtain?

A. I tested some smoked ham.

By the Court:

Q. Smoked with what?

Q. What was sent to me by a friend of mine in the country, as smoked ham.

By the Court:

Q. Smoked with what? A. I don't know.

Mr. Butler: This is immaterial and irrelevant, just as these flours are that he has been talking about.

Mr. Scarritt: If your Honor please, the testimony here is that any smoked ham has nitrites in it.

Mr. Butler: Do you expect to contradict that?

2097 Mr. Scarritt: No, sir, but it is immaterial what it is smoked with.

The Court: Go on, but it is sort of indefinite, because I happen to know—I am not offering testimony—that meat, in the country, is smoked several ways. This gentleman does not know how this was smoked.

Mr. Elliott: I am not going to distinguish between them.

The Court: Go on.

By Mr. Elliott:

Q. Give us, Doctor, what you obtained.

A. Smoked ham, in parts per million, 3.2. Smoked shoulder,—that is, the pork shoulder, .66 parts in a million.

Q. What was the first?

A. 3.2 parts per million, smoked ham, and .66 smoked shoulder. Bacon, 1.02 per million, all of nitrite nitrogen.

Mr. Scarritt: Smoked ham is what?

The Court: Go over it again.

By Mr. Scarritt:

Q. Just that one. A. 3.2, smoked ham.

By Mr. Elliott:

Q. Now, have you made any experiments, Dr. Rockwood, to determine the effect on the blood as to production of met-hemoglobin by nitrites taken internally?

A. I made one, yes, sir.

Q. On whom did you make that test?

A. I took the nitrites.

Q. Yourself? A. Yes, sir.

Q. Tell us how much you took.

A. I took eight grains of sodium nitrite.

Q. At one time? A. In four two-grain doses.

By the Court:

Q. Sodium nitrite? A. Sodium nitrite.

By Mr. Elliott:

Q. In four two-grain doses? A. Yes, sir.

2098 Q. And over what period did you take them?

A. The first was about four o'clock in the afternoon, I took two; one after that, five or six; and two the next morning as soon as I got up, and one at ten o'clock.

By Mr. Helm:

Q. That is, you took between four o'clock in the afternoon and ten o'clock the next day?

The Court: Just read the question and answer.

(Question and answer read by the reporter.)

By Mr. Elliott:

Q. Now, I will ask you if you noticed any ill effects from taking it. A. I noticed no ill effects from taking it.

Q. Did you test your blood after taking these nitrites?

A. I did.

Q. How soon after the last dose?

A. The blood was drawn at eleven o'clock, one hour after the last dose.

Q. Now, how did you test the blood?

A. I examined it with the spectroscope immediately, and I found no met-hemoglobin. I let it stand, at body temperature, for three hours and a half after that, and examined again with the spectroscope, but found no met-hemoglobin.

Q. Tell me what the significance of that last is.

A. I thought that possibly it might form slowly.

Q. Doctor, it has been testified here that the body has no defense against nitrites. I want to ask your opinion in respect to that view.

A. I think there is substances present in the body which might protect it, and would protect it against the action of

nitrites; would destroy a moderate amount of nitrites taken into the stomach.

Mr. Butler: What was the substance?

By Mr. Elliott:

Q. What was the substance? A. The substance is urea.

By Mr. Butler:

Q. Urea? A. Yes, sir.

2099 By Mr. Elliott:

Q. What is the action of urea in respect of nitrous acid?

A. Urea is well known to be a substance which will destroy nitrous acid.

Q. And is urea present in the body?

A. Urea is present in the body.

Q. I want to ask you Doctor, assuming that this flour, seized, contains 1.8 parts per million nitrite reacting material, and assuming bread made from such flour contains one part per million of such nitrite reacting material. I will ask you if in your judgment, the eating of such bread could produce harmful effects in the body.

A. Owing to the presence of the nitrite material?

Q. Yes, sir. I mean that, of course.

A. My opinion is that it would not.

Q. I will ask you, on the assumption of the last question, if, in your judgment, that amount, namely one part per million of nitrite reacting material could produce any appreciable effects of any kind in the body.

A. That nitrite reacting material?

Q. Yes. A. My opinion is that it would not.

Cross-Examination

By Mr. Butler:

Q. How much nitrite reacting material, such as will be put in flour by this bleaching process, will render the food made from it injurious to health, if any quantity will?

A. I am unable to say.

Q. Will any quantity? A. Is your question whether—

Q. (Interrupting) Any quantity of nitrites, such as are added to flour by the bleaching process, such as you find by the Griess test, after it comes out of the bleaching machine—will any quantity of that injure the health, if the people eat it?

A. I would like to answer that question, but I will say I am not sure that I know just what that compound is. If I am going to answer, about that compound, which do you mean?

2100 Q. Did you have that compound in mind, in answering Mr. Elliott's hypothetical question, about one part of million? A. Yes, sir.

Q. What did you have in mind? What kind of nitrites did you have in mind in answering that question?

A. I don't know of any kind of nitrites which, in that quantity, would be dangerous.

Q. What is the worst kind of a nitrite that you do know about? A. I suppose such ones as the organic nitrites.

Q. And amyl nitrite? A. Something of that class.

Q. Won't a drop of amyl nitrite produce immediate therapeutic effects, observable—a single drop?

A. Its effect depends much on how it is taken.

Q. Well, if it is inhaled.

A. If it is inhaled, it acts much more markedly, than if taken internally.

Q. A single drop will produce a marked effect?

A. A marked effect.

Q. Might kill a baby?

A. I am unable to say about that.

Q. You will not say it won't?

A. No, I cannot say it won't.

Q. Do you think that kind of nitrite in any quantity however minute, ought to be added to flour, if you have a regard for health?

A. May I ask what you mean by "ought to be added"? Whether it would be harmful?

Q. Having regard to health, I say, ought it, if we have regard to health?

Mr. Scarritt: We object to that question.

A. If I understand the question, I will try to answer it as I understand it, that small quantities, sufficiently small quantities of that, would not injure the flour.

Q. I am not asking you that.

A. Well, I said I did not understand what you meant by "ought to".

Q. Well, having regard to health of the consumers, our babies, and ourselves, and our fellow men, ought any substance like amyl nitrite to be added to flour?

A. Well, have I answered it if I say that sufficiently small quantities would not injure health?

Q. How small would they have to be?

2101 A. I am not able to draw a positive line.

Q. Then, the only thing for a prudent medical man, or a prudent layman, to do, is to keep it out, unless he knows that it is safe to take in, isn't it.

Mr. Scarritt: Same objection.

The Court: He may answer.

By Mr. Butler:

Q. Now, here is a substance—

Mr. Elliott: (Interrupting) Now, let him answer it.

Mr. Butler: I am going to enlarge the question so the Doctor and I will understand it. If you gentlemen will just keep still, I will stipulate that you can have objections and exceptions to every question that I ask.

Mr. Scarritt: All right, with that understanding.

Mr. Butler: That is understood, and I will see if I can get you to keep still.

Q. Now, Doctor, so that we may understand it, you, as a medical man, are unable, with respect to this kind of nitrite that you have just referred to—the amyl nitrite, to tell how much, or how little would be injurious, or to define any quantity however minute, which would be perfectly safe?

A. Well, I do not think I answered that question. I said how much.

Q. How much of amyl nitrite would it be perfectly safe to put in our food, and take it every day, and every time we eat bread, or the products of flour?

A. I think that quantity represented by one part nitrites nitrogen in a million parts of flour, would be harmless.

Q. You think that would be harmless? A. I think so.

Q. Are you sure of that? A. That is my opinion.

Q. Are you so sure of it, that you would add it to the food of the people of this nation?

A. I would be perfectly willing to add it.

Q. To their food? A. To their food.

Q. With your present knowledge? A. Yes, sir.

Q. For what purpose? Why would you like to do that?

2102 A. I did not say I would like to do that.

Q. Why would you be willing to do that?

A. Because I do not think it would do any harm.

Q. Twice that much?

A. I don't think twice would hurt, but I cannot draw the line.

Q. Well, three times? Would you be willing to feed the people of this nation three times that much?

A. I do not think that would do any harm.

Q. Four times?

A. I should not think four times would do any harm.

Q. I am asking you if, with your present knowledge, you would be willing to feed the people of this nation four times as much.

Mr. Scarritt: It is understood we object to that?

Mr. Butler: Yes.

Mr. Scarritt: It is understood the objections are overruled, and that we except?

Mr. Butler: Yes, all understood.

A. Well, I cannot say. I haven't any positive opinion, when you get up in larger quantities.

By Mr. Butler:

Q. Why wouldn't you be willing to put ten times as much in? A. May I explain?

Q. Certainly.

A. I know that large amounts of nitrites do have harmful effects.

Q. Poisonous effects?

A. Poisonous effects, and I am convinced that such ones as we have been talking about, in my opinion do not have, and just where the line between the two comes, I cannot say.

Q. You mean such quantities? A. Yes.

Q. You said such ones, but you meant quantities?

A. Yes.

Q. Now, I think you and I understand each other very well.

A. I hope so.

Q. This substance may be characterized, when associated with a respectable quantity, as a poisonous substance?

A. That is, when you have—by "respectable", you
2103 mean considerable?

Q. Yes. May have a poisonous action? A. Yes, sir.

Q. Now, is it not right, from the standpoint of your profession, which has to do with our safety as a people, is it not right to exclude substances, of poisonous character, from foods, in so far as that may be done?

A. If we had any suspicion that they would be poisonous, they ought to be excluded from the foods.

Q. Now, I am sure you will agree with me that different individuals have different powers of resistance, of any poison. Isn't that true? A. That is true.

Q. Now, for example, let us illustrate that by laudanum. If you go to a drug store and buy laudanum, they will probably put a printed label on it, indicating a dose of, say forty drops, maximum, for adults. That is true, isn't it? A. That is true.

Q. That is a medicinal dose, and not a poisonous dose. Isn't that true? A. Yes, sir.

Q. While the medicinal action may be a poisonous action in its nature—I am not trying to get any point on that. That is true, isn't it? A. Yes, that is probably true.

Q. But, on the other hand, it has been reported, has it not, that death,—and well established by the highest living authorities, who use our language, that one drop of laudanum has been a fatal dose? A. Is that a question?

Q. Yes. Now, that is true isn't it?

A. I don't know about one drop, but I know several drops will act as a fatal dose on small infants.

Q. It would not act?

A. Yes, it would act on small infants.

Q. Now, you are not astonished by my statement, when I say to you, as I read the book, myself, that it is reported by no less an authority than Dr. Haines, who sits here in the court room, for the flour bleachers, that a drop has been proved to be a fatal dose? Now, that seems to you to be reasonable and likely, does it not?

A. That may be correct. I could not dispute it.

Q. Now, that illustrates a general rule, does it not, that substances of a poisonous nature may be taken with
2104 safety by some, but be utterly destructive of life of other in relatively very small amounts?

A. Well, of course, that term "very small" is somewhat indefinite.

Q. Well, I mean very small—forty to one, for example.

A. Well, forty to one, that would be probably true.

Q. Now, doesn't that all argue, with just as much certainty as anything can be argued in your science, in your craft, that the safety of public health requires that poisonous substances shall not be added to food?

A. With the understanding that we could agree on what a poisonous substance is.

Q. Well, now, you and I will agree on that, I think.

A. On that proposition?

Q. Yes.

A. That poisonous substance should not be added?

Q. Yes. Don't they?

A. If we can understand what you mean by "poisonous substances", we will agree.

Q. Yes, sir. Well, now, you do not have any difficulty, in the ordinary walks of life, in making yourself understood by "poisonous substances", do you, when you use the word poison? A. That expression conveys a common meaning.

Q. Popular meaning? A. Popular meaning.

Q. And, within the meaning of the word "poisonous substances" falls strychnine, and nitrites, and nitroglycerin, and digitalis, and thousands of substances that are poisonous, ni-

tric acid and nitrous acid, and gases called nitrogen peroxide and nitrogen trioxide.

A. I should say yes, if you will associate with these terms, in the public mind, reasonable quantities.

Q. Yes, and that, what quantity may be reasonable in the one case, might be very excessive in another?

A. Yes, sir.

Q. That is true, isn't it? A. Yes.

Q. A drop of nicotine may kill? A. It may kill.

Q. A drop of aconite has been known to?

A. I am not certain about the lowest fatal dose of aconite. It is small.

Q. Now, so as to avoid any differences, on account of the different use of words, are we not—now, speaking as laymen, making ourselves very clear,—when we say that they are substances which, by their nature, are poisonous, because
2105 they produce poisonous effects, if taken?

A. I do not think I would agree with you.

Q. You do not think that there are? A. No.

Q. (Handing the witness an exhibit) Then, if I told you that there has been added to that bread some strychnine—I don't say how much, and the presiding judge should meet you tomorrow, and ask you, "Assuming that Mr. Butler told you the truth, was there a poison added to the bread," what would you say?

A. If he wanted me to answer as accurately as I could, using scientific language, I should say no.

Q. If you were using common speech of people, upon which you live, and by which we all make ourselves understood, you would say yes, wouldn't you?

A. I said, if associated with that were the idea of a reasonable amount, or considerable amount.

Q. Well, no amount of strychnine is reasonable, in bread?

A. Well, "considerable" amount. I qualified that.

Q. Would there have to be considerable strychnine in bread, before you would say there was poison?

A. Oh, I suppose "considerable" is also indefinite.

Q. Isn't strychnine poisonous? A. Often poisonous?

Q. I asked you if strychnine is poison. Can't you distinguish between a thing and the action? Can't you distinguish between the substance which kills, and the death.

A. Yes.

Q. Now, I am speaking of the substance. We will say, for the purpose of the point, I brought that thing in here full of strychnine. You would say that was a poison, wouldn't you?

A. If it was, I certainly would.

Q. Now, if I divided it in two, you would say there was poison in it, wouldn't you? A. Yes.

Q. And if I divided it again there would be poison in it?

A. Yes.

Q. And so on, to infinity? A. No, sir.

Q. The character of the substance would change by division?

2106 A. Its poisonous character would change.

Q. I am not speaking of its action. I am speaking of the quality of the stuff.

A. I should have to answer it according to my idea of the nature of the poison, what I mean by "poisonous substance."

Q. What do you mean by "poisonous substance"?

A. I mean that a poisonous substance has, for its usual action on the individual, in the quantity in which it is taken, some injurious effects.

Q. Can you mention anything that is not a poison, under that definition? A. I think so.

Q. What?

A. I think if I took an ordinary biscuit, it would not be a poison.

Q. But, in appropriate quantities, it would, wouldn't it?

A. I said, the quantity in which it is taken.

Q. The quantities in which it is taken? A. Yes.

Q. You mean in which it is customarily taken?

A. When I am testifying about a biscuit, I should say that I consider that particular amount of food material. Answer the question for that.

Q. Now, we will say that you promulgated a rule in your house, or boarding house, or passed a law in your state, which says poisons shall not be added to foods, and you found a man making nitric acid and nitrous acid, and strychnine, and prussic acid, mixing it with your flour, and had machines for mixing it up with your flour, and you were asked if poisonous substances were added, could you conscientiously, say no, as to any amount of it? I mean, within your science, now.

A. I could conscientiously say no with some amounts, yes, sir.

Q. And you could always say no, until there was enough in there to hurt somebody?

A. To produce some deleterious effect.

Q. And you could not tell, by looking at the flour, how much that would be, could you?

A. Oh, you probably could not.

Q. You would have to wait until it hurt somebody, wouldn't you?

A. You would have to, or you would have to test it, to see what quantity would produce deleterious effects.

2107 Q. But, when you found the quantity, you could not tell how much would kill a baby?

A. If you tested on enough babies, you might, but that would not be the way I would do it.

Q. You would have no other way to find it out, whether it was poisonous, until you tried it on the baby, and if it killed the baby, it was, and if it didn't kill the baby, or make it sick, it wasn't? Is that the way you would have to find out what is poison, according to your definition? A. No.

Q. How are we going to find out how much of this nitrite that they put in flour by bleaching, is good for it, or will be dangerous to use?

A. I suppose by a considerable series of experiments.

Q. On whom?

A. Well, if I had to make that, I should probably make them on the lower animals in the first place.

Q. Then, if that must be done with flour, it must be done with cream, mustn't it, because they put formaldehyde in cream?

A. If that method of experimentation is to be adopted for all materials, it would have to be done with cream.

Q. So, your idea is, that no such articles should be excluded, on account of the poison added?

A. No, sir, I did not say that.

Q. Wait until I finish. Unless it be shown that that poison be in such quantity that it may injure somebody, and unless that be shown by experiments,—until it has been so shown by experiments that it did, under your definition, you can conscientiously swear there is no poison there? Isn't that a fair statement of your testimony?

A. Well, I don't think it is a fair statement of my position, no.

Q. Let me try it again. You say in this flour that nitrites, in sufficient quantities, are poisonous? A. Yes, sir.

Q. That is the reason you did not take the eight grains at once, isn't it? A. I took the eight—

Q. (Interrupting) I know how you took them, but the reason you did not take the eight grains at once, was because they were poison? A. No, that was not the reason.

Q. You thought it would be too much to make met-hemoglobin, if you took eight grains at once? A. No, sir.

2108 Q. You think it would be more likely to make met-hemoglobin, if you peddled it out over a day or two?

A. No, sir.

Q. Well, why didn't you take it all at once?

A. I took it, because two grains is a very common medicinal dose, for a person of my weight.

Q. I know. What figure does that cut? You were not sick? You were not taking it for medicine?

A. No, I was not sick.

Q. Now, if it is harmless stuff, why didn't you take the eight at once? Why did you look at the dose?

A. I know it already.

Q. You know the medicinal dose? A medicinal dose has a poisonous effect, by nitrites, doesn't it?

A. I don't know about that.

Q. Why, don't you know that the throbbing of the temples follows a medicinal dose, and isn't it laid down in every text book? A. I don't know.

Q. And, by the fall in blood pressure?

A. I know it modifies the blood pressure.

Q. Don't you know that that is poison in action, and that it may be carried on, right then and there, to death, by putting in a little more and a little more until the patient dies, right there?

A. I don't think that is a common use of the word "poison".

Q. I am not asking you if that is a common use of the word "poison." I am asking you if it isn't the same effect, only different in degree. If I took some strychnine, and it convulsed me, and Dr. Haines comes over, and saves my life, because he knows how, I am poisoned just the same as if I died, ain't I? A. Yes.

Q. So, if you take a dose of nitrite of sodium, and your head throbs, and you reel, and your blood pressure declines, and you become sick, but do not die, are you not poisoned?

A. I did not have any of those symptoms.

Mr. Butler: I move to strike that out.

The Court: Yes, that is not an answer.

A. (Continuing) On the supposition that I did have deleterious effects?

2109 By Mr. Butler:

Q. Yes. A. Deleterious symptoms?

Q. The symptoms that are characteristic of nitrites, in medicinal doses.

A. That is, on the assumption the two grains would produce that?

Q. I am not talking about quantities at all.

A. I want to understand your question.

Q. If you take enough to produce these things but not to kill you, you are poisoned just the same as I was poisoned with the strychnine, in my last illustration, aren't you?

A. In my definition—

Q. Call it deleterious, or benign, I don't care what you call it. It is poisonous, isn't it?

A. Not if they are benign effects, I should not call it poisonous, no.

Q. Intoxication is poisonous action by whiskey? A. Yes.

Q. The child made sick by his first cigar, poisonous?

[Q.] That is poisonous, yes, sir.

Q. The boy made drunk by his first glass of beer?

A. Yes.

Q. The patient who is subjected to anesthetic, to have his tooth pulled, or his leg sawed off, it is poisonous, isn't it?

A. I should not call anesthetic a poison.

Q. But you would call [alcohol], and a glass of beer?

A. Yes.

Q. When a man is made drunk with chloroform, till he is paralyzed, is it not comparable with the same condition from alcohol? Not comparable?

A. He loses consciousness. It is comparable in that way.

Q. It is poisonous, isn't it? They are both poisonous, the alcohol, and the chloroform, and the ether?

A. I am not in the habit of calling, and do not call chloroform and ether poison.

Q. Suppose they kept right on giving him the ether, and did not let him wake up, is it poison? Suppose it is a dog, and you keep it right to his nose till he dies. Is he poisoned?

A. Well, I don't think I should call it a poison.

Q. You would call him killed, wouldn't you?

A. I would call him killed, if it did not take too long.

2110 Q. But, if you let him wake up, you would think nothing had been done to the dog?

A. I think he would have been rendered unconscious, yes.

Q. But not poisoned? A. Not injured. Not poisoned.

Q. That would not be an injurious effect?

A. I should not consider it so.

Q. It would not be injurious to health?

A. I do not think that, to make him unconscious, would be injurious to health.

Q. Suppose we put enough nitrites in our bread to make us unconscious, a little while after we ate each meal, would that be injurious to health?

A. I should think that it would, yes.

Q. You are not sure about that?

A. I have not proved it.

Q. If this bleaching process adds so much nitrite poison to bread that the eating of it would, after continued use, render people unconscious by the reduction of their blood pressure to such an extent that they would be unconscious temporarily but would revive, and go on about their work, and that thing would be repeated and repeated, and repeated, would you think that would be injurious to health?

A. Well, I could not say positively. I should think it might.

Q. I know, but can't you say that it would be positively a bad thing, for us to have flour treated with it?

A. If enough nitrites should be added to make them unconscious, after taking it?

Q. Yes, in bread, as we eat it.

A. I haven't any basis for positively answering such a question. I should think it might, but I could not say.

Q. Suppose somebody got drunk to the point of paralysis, twice every week, would you think that would be injurious to health?

A. I should think so, yes, sir.

Q. Now, suppose nitrites in flour, added by bleaching, made a man weak, by depressing his blood, a pronounced shock every day, so you say that would be injurious to health?

A. Well, I don't understand just what you mean by that,—
"make him weak by depressing his blood."

2111 Q. Depressing the blood, lowering the pressure. I thought you agreed with me that nitrites—

A. (interrupting) You did not say pressure.

Q. Well, I meant blood pressure. Don't be particular about my words. If you lowered the blood pressure, so that the man was weakened almost to sleep, or unconsciousness, and that the bread does it, and the bleaching makes the bread do it, do you think that would render it injurious to health?

Mr. Scarritt: You have not forgotten our contract?

Mr. Butler: No.

Mr. Helm: I don't know whether the court is a party to that contract or not.

Mr. Scarritt: Silence gives consent.

The Court: Go on.

A. I could not say that I thought it was injurious, as stated in that way, no, sir.

By Mr. Butler:

Q. Well, we will pass that. Do nitrites change hemoglobin, or oxyhemoglobin into met-hemoglobin in the blood?

A. They do, under some conditions.

Q. Is this a chemical reaction, subject to the laws which govern chemical reaction?

A. It is a chemical change which goes on.

Q. Is it the result of a chemical reaction?

A. Yes. I think you would call it that.

Q. If that is true, this reaction would occur, would it not, whenever the conditions existed, under which it ever did occur?

A. It would.

Q. Because chemical laws act with certainty, do they not?

A. Chemical laws are statements of facts, and if you mean it in that way, as statements of facts,—a law could not be said to act, but it states facts, which facts are true.

Q. The law of gravity doesn't act?

A. No, but gravitation does.

Q. Well, I know. How much nitrite does it take to
2112 change a molecule of hemoglobin into met-hemoglobin, under proper conditions?

A. I don't know any evidence for answering that.

Q. Would you think a quart of nitrite would change a molecule of hemoglobin into met-hemoglobin?

A. I have no doubt that it would. I have changed it with much less than that.

Q. You have no doubt that the amount of nitrites would not exceed one or two molecules per molecule of hemoglobin, have you?

A. I should think that that might represent it.

Q. Do you now think that it might also be true that one molecule of nitrites might change more than one molecule of hemoglobin into met-hemoglobin?

A. It might, but I have no evidence.

Q. But the chances are they would act, in about like quantities? A. They might.

Q. Do you think it is a good thing, or a bad thing, to change the hemoglobin of the blood into met-hemoglobin?

A. I say there is no advantage to the organism to change the hemoglobin to met-hemoglobin.

Q. There is an injury, isn't there? It injures the blood that is changed, doesn't it?

A. Met-hemoglobin does not have the same function in the body, as the hemoglobin does.

Q. It injures the blood that is changed, does it not?

A. Injures, it in that way, that the met-hemoglobin could not perform the office which the hemoglobin does.

Q. That means it destroys the functions of the hemoglobin?

A. Of the hemoglobin, yes.

Q. It destroys just so much of the blood as is changed, doesn't it?

A. Well, it is in that form, of met-hemoglobin.

Q. And that, carried far enough, will produce death?

A. It will produce death.

Q. And it is the characteristic sign of death, by nitrites poisoning, met-hemoglobinaemia, isn't it?

A. It is, as, in nitrites.

Q. Yes, it is the characteristic. I am going to ask you whether it is the sign or characteristic sign of death by nitrite poisoning.

A. I should say it was a characteristic sign.

2113 Q. And it is the one characteristic sign? The only one that it can be, at all, isn't it?

A. Well, perhaps you and I will agree on it, but, if you have met-hemoglobinuria, it does not follow that death took place from met-hemoglobin.

Q. I mean met-hemoglobin, now.

A. Well, I meant met-hemoglobin.

Q. You said met-hemoglobinuria.

A. I meant met-hemoglobinaemia. That would be no proof, at all.

Q. It might be done by acetanilid? A. Yes.

Q. And what else?

A. In general, oxidizing agents. Chlorate of potash, ozone, potassium ferricyanide.

Q. Did you ever see met-hemoglobin in living blood?

A. No, sir, not in the living blood.

Q. Taken from the living stream?

A. I never have.

Q. Do you know whether that was ever done or not, by anybody?

A. In the literature, in pathological conditions, we have met-hemoglobin in the—

Q. (Interrupting) Well, I know they say it is there, but do you know whether anybody was every bled, and the blood exposed to the spectroscope, and showed met-hemoglobin.

A. I have never personally seen it. I have been taught that that was true.

Q. Is the spectroscope a delicate test, or not?

A. It is, ordinarily, a very delicate test.

Q. How delicate—one to the billion? A. Oh, no.

Q. One to the hundred thousand? Now, one to the hundred thousand is considered very delicate, isn't it?

A. For a good many substances.

Q. How delicate is it?

A. I have never tried to see how small quantities of blood coloring matter I could detect by the spectroscope.

Q. You do not know how delicate it is?

A. I do not know.

Q. Are you prepared to swear that I could not be poisoned to death by nitrite of sodium, if you were sitting here tapping my blood all the time? Are you prepared to swear that you would certainly find met-hemoglobin in my blood, if you kept taking it from minute to minute, exposing it to the

2114 spectroscope? In other words, could I not be poisoned to death before you could find the met-hemoglobin in the blood, by the methods which you employ?

A. In my opinion you could not.

Q. Upon what do you testify that?

A. That met-hemoglobinaemia is one of the characteristic symptoms of fatal nitrite poisoning.

Q. Don't have to change it all, to kill, do you?

A. You would have to change a considerable part of it.

Q. Now, is it not true that at least twenty per cent of the hemoglobin must be changed to met-hemoglobin, before it can be seen by the spectroscope, at least twenty per cent—one half of all?

A. I am not able to say as to that.

Q. And is it not true that very much less than the total will kill?

A. Very much less than the total hemoglobin has been changed into met-hemoglobin?

Q. Yes. Won't you die first. Is it not the truth that, if fifty to sixty per cent of the hemoglobin of the body is changed to met-hemoglobin, is it not true that death will follow in adults, and, in cases of children, a much lower per cent?

A. I could not give the exact per cent, but I am willing to say that serious results would follow, if you changed fifty to sixty per cent into met-hemoglobin.

Q. Well, when you say "serious" results, that is a relative term. That means funerals, and sermons?

A. I say I could not positively say about the fatal limits.

Q. Is it about that per cent.

A. I don't know about that.

Q. Now, all this points with great certainty, does it not, to the wisdom of keeping these poisonous nitrites out of our food?

A. In quantities in which they would be poisonous, I should say it would.

Q. Now, if fifty per cent of my blood would be changed from the hemoglobin to the met-hemoglobin, that would kill me—let us assume that, and you could not say it would not—don't you think one per cent would be undesirable to have taking place every day?

2115 A. I don't think that, if one per cent of that change took place every day, it would mean that it would be fifty per cent, in fifty days.

Q. I did not ask you that. I asked you if it would not injure my health, in all human probability. You say I could have one per cent of my blood destroyed, by poisoning it with these nitrites, every day, and it would not injure me? Is that what you want to say?

A. I want to say that a considerable amount could be changed, every day, without injury.

Q. I asked you, if I poisoned my blood about one per cent every day, by nitrites added to flour by this bleaching process,

if you would not swear you thought it a bad thing, and injurious to health.

A. Well, I will swear that I should not want to have one per cent of my blood changed in that way every day.

Q. Because men at your age and mine don't build up so easily as we used to, do we? A. Probably not.

Q. The blood is the vital stream, isn't it?

A. It is necessary for life.

Q. And it belongs to the individual, doesn't it?

A. Certainly.

Q. And the man who poisons your blood by putting poison in your food is liable to impair your health, isn't he?

A. If he poisons your blood, certainly.

Q. In any degree? In any degree, it will impair your health, and tend to, won't it? A. If he poisons your blood.

Q. Now, nitrite, when it changes the hemoglobin to methemoglobin poisons the hemoglobin so it cannot carry oxygen, doesn't it?

A. It changes the hemoglobin so it cannot carry oxygen.

Q. All right. We will say change it, if you do not like the word "poison". Now, urea defends against nitrites, you tell us? A. I think it would.

Q. How does any medicinal effect take place, if urea is an antidote for it?

A. There has to be a certain amount of urea present, to destroy nitrous acid—

Q. (Interrupting) You do not have enough urea? Is 2116 that the idea?

A. You do not have enough urea in the place where it would be available.

Q. Is there urea in the stomach? A. Yes, sir.

Q. So, when the nitrite would go down by the way of the stomach, it would meet the urea? A. Yes, sir.

Q. And that acts as an antidote? A. Yes, sir.

Q. Is the urea put in the stomach of persons, purposely to meet nitrites? A. I am unable to say.

Q. Who says, besides yourself—what great authority, if any, says there is urea present in the stomach, as a rule?

A. It is present in the saliva and the saliva is swallowed. Therefore, it is present in the stomach.

Q. Oh, yes. The urea destroys nitrites, does it?

A. Urea will destroy nitrous acid.

Q. Will it destroy nitrites?

A. It probably would not destroy—at least I do not know it would destroy nitrites.

Q. Well, you couldn't have nitrites and the urea both, in saliva, if one of them would destroy the other, could you?

A. You probably could not.

Q. That's a sure thing, isn't it?

A. Unless the destruction were slow.

Q. Well, now, who says it is in the stomach? Do you want to say that there is urea in our stomachs? Now, I don't know a thing about this. A. Yes.

Q. All the time?

A. All the time that the saliva is being swallowed.

Q. And it comes from the saliva?

A. Well, part of it comes from that.

Q. Do you say that the nitrites taken in the saliva are not harmful?

A. They are much less harmful than those that are taken other ways.

Q. Because the urea is in the saliva, to counteract them?

A. It would seem to me that the nitrites are destroyed in the stomach.

Q. So, there is a balance of the urea of the saliva, with the nitrites of the saliva?

2117 A. That would simply be, one to overcome the other.

Q. Then, where does the excess of the urea come from, to meet the bleached flour nitrites, if there be nitrites in bleached flour?

A. Well, I think there is a sufficient amount there in the saliva.

Q. Suppose we doubled the amount in the flour, would there still be sufficient urea? A. I am unable to say.

Q. No? Now, is there urea in the blood? A. Yes, sir.

Q. Will it destroy nitrites in the blood?

A. Urea would probably not destroy nitrites in the blood.

Q. Why?

A. Because urea does not destroy nitrites directly, but only after they have been converted into nitrous acid.

Q. Urea will not act in an alkaline body, will it?

A. Not upon nitrites.

Q. And the blood is alkaline? A. Is alkaline.

Q. So, you have to have the urea in the mouth, where it is not alkaline?

A. Oh, the mouth is alkaline, but the stomach is not.

Q. So, the urea that comes from the mouth meets the nitrites, there, and goes hand in hand with them to the stomach, where the stomach is acid, and destroys them there?

A. I think it would.

Q. And then the urea goes on into the blood, with the nitrites, but does not destroy them in the blood? Is that your idea of the defense against nitrites?

A. It would destroy them in the stomach, but not in the blood, if they were both present.

Q. So that, what other defense is there against nitrites, in nature, except urea, which you have described? Urea is associated with the bladder evacuations, is it not?

A. It is contained there in considerable quantities, yes.

Q. Urine? A. Yes.

Q. Now, what, besides the urine?

A. I am unable to state any other specific instance.

Q. So, then, so far as your learning goes, the only defense that nature has provided against nitrites, or poisoning by nitrites, is urea?

A. That is the only one that I can give, as being likely, in my opinion, to cause it.

2118 Q. You have thought of this matter carefully, of course?

A. Why, I have thought of it, of course.

Q. And the urea will not do it in the mouth? A. No.

Q. It will not do it in the blood? A. Probably not.

Q. Will not do it anywhere, except in an acid solution?

A. That is my opinion.

Q. That is your opinion? And you say that there is sufficient quantity in the stomach to take care of all that comes from saliva?

A. My opinion is that there would be a sufficient quantity.

Q. And would you say also that all that comes from ham, which is three parts to the million?

A. I said that I could not tell, if you increased the amount nitrite nitrogen—multiplied it, just how that would be taken care of.

Q. So, if there was just enough to balance against the saliva nitrites, the system would be defenseless against the ham nitrites? A. If there were just enough.

Q. Or the bleached flour nitrites?

A. I don't know what else there may be there, but I said I could not tell any other defenses.

Q. So far as you know? A. That is right.

Q. Can you give us any authority for urea in the saliva of people who are not afflicted with kidney disease?

A. Wort's Dictionary of Chemistry, states it is found in the saliva.

Q. Is that a medical work? A. It is a chemical work.

Q. When did you first know that? A. A few days ago.

Q. When did you first hear that urea was a defense against nitrites?

A. Well, it is a matter of common chemical knowledge that urea will destroy nitrous acid. It is used for that purpose.

Q. I will ask you to answer my question. When did you first hear, read, or have told to you, or learn that urea in the stomach was a defense against nitrites?

A. It was called to my attention yesterday or the day before, that that was present there—that is, that reaction was called to my attention. I had not thought of it in that light before.

Q. Who told you that?

A. I think it was Dr. Haines.

Q. Dr. Haines, who sits here in the court room? A. Yes.

Q. Now, until Dr. Haines told you that urea in the stomach was nature's defense against nitrites, you had never before, in all your professional learning, studies, and researches, thought of it in that light, had you?

A. I had known all along that urea would destroy nitrites—nitrous acid.

Q. You mean nitrous acid? A. Yes, nitrous acid.

Q. I know, but I will ask you to answer the question.

A. I had not thought of it in that light, no.

Q. So, having been informed by Dr. Haines, two days ago, that that was nature's defense against nitrites, if added to food, you came before this jury, and told us that in your opinion nitrites, added to food, in quantities suggested here, would be harmless? A. Would be harmful?

Q. Harmless—not injurious to health—justified the use?

A. I should not want to say yes to a question put that way.

Q. Didn't you mean that they were harmless?

A. Yes, but I mean that other part of the question.

Q. But isn't it the God's own truth that, never until a few hours ago, forty-eight, or such a matter, did you ever hear it suggested that urea was a defense to these nitrites; that, having been told that it was, according to the theory of Dr. Haines, who is sitting here, you then came to us, and, as a learned man from a great university, of a great state, told us nitrites in food are harmless?

A. I do not want to say that to the question it was because he told me that that was the defense against nitrites.

Q. But you had never thought of it, before, in all your life?

A. I had never thought of that point before, no.

Q. And, finding out that nitrous acid would be decomposed by urea,—or, you knew that? A. I knew that.

Q. Coupling that with what Haines told you, then you endorsed bleached flour, as described in Mr. Elliott's question? Is that it?

2120 A. Before that, I was willing to say, and did say, that I thought the flour was not injured. Bleached flour is more easily digested than unbleached.

Q. You did not examine it for poisons?

A. I made no chemical analysis, no chemical tests for poisons, no.

Q. Who told you that flour that you used was bleached?

A. The company that sent it to me said that it was bleached, and had nitrites there.

Q. Did you analyze it to see if it was bleached?

A. I made the test for nitrites.

Q. Do you know how to find out whether flour is bleached or not, by analysis?

A. I know the common test for nitrites.

Q. Your experience is that bleached flour shows nitrites?

A. Yes.

Q. And that unbleached flour does not?

A. Ordinarily does not.

Q. Usually does not? A. Usually does not.

Q. You never found any that time, did you, to amount to anything, any more than a mere trace?

A. I found some that was said to be unbleached. I don't know whether it was or not.

Q. Now, did you, in making these digestion experiments establish that the bleached flour digests more rapidly, about thirty per cent, as to its gluten?

A. I do not think it was thirty per cent. It was only a few per cent.

Q. I have, the bleached digestion 15.6, the unbleached 11.6. Calling the bleached one hundred, the other was seventy per cent of that. Thirty per cent, then in the degree of digestion, and the next was 19.2, and 14.3—thirty per cent, or, seventy of the other. Now, that is thirty per cent.

A. I didn't think it was as much as that.

Q. Well, that is what it is, if you take one hundred as a basis? A. I did not calculate it that way.

Q. Now, all of your results practically fell on that side?

A. Yes, sir, they fell on that side.

Q. Now, your conclusion, therefore, is inevitably, that
2121 bleaching improves the gluten and starch of the flour, both wet and dry?

A. Not the starch.

Q. What was the condition of your starch?

A. I found no difference in the starch.

Q. One was twenty-eight and one was twenty-six, wasn't it? A. That was not the starch.

Q. Well, we will let that go. No change in the starch, and improved thirty per cent, as to the gluten, in most of these. What was the cause of that, in your opinion?

A. I am unable to say.

Q. Now, let us turn around to this blackboard. If the coloring matter is terpene, and if the amount of coloring mat-

ter be one hundred-thousandth, and if the bleaching medium acts on the terpene alone, what is it that changes bleached flour, so that the bleaching affects the gluten so that it will digest one hundred per cent while the unbleached digests seventy, or in that rate? What is it, in your opinion, by that process, that improves the digestibility of gluten thirty per cent?

A. I said I was unable to tell what improved it.

Q. Now, do you believe that bleaching does improve it, as a professional man?

A. Why, I believe that those experiments show—that is, in these particular cases. These are the ones I tried, and these are typical of the others,—that it is more easily digested.

Q. Now, if these flours were alike, except that one was bleached and the other was unbleached, as a scientist, you say these things prove—these experiments prove that bleaching improves digestibility, don't you? A. Makes it more easy.

Q. You understood that these flours were the same, except that one was bleached and the other was unbleached?

A. I understood they were the same.

Q. Whoever got you to do it, told you that, didn't they?

A. I asked for that kind of flour. I understood it was sent.

Q. Who requested you to do this, by the way?

A. Mr. Smith, I think.

Q. The lawyer who was in this case?

A. Ed. P. Smith.

2122 Q. Now, your problem was to find out whether or not flour was affected by bleaching, with respect to digestibility? A. Yes, sir.

Q. You were furnished what you understood to be flours exactly alike, except one was bleached, and the other was not?

A. Yes.

Q. And you found, as you have stated, that the bleached flour was thirty per cent more digestible than the unbleached?

A. According to those figures, yes, sir.

Q. Now, that would justify the generalization, would it not, that bleaching improves the digestibility of the gluten of flour about thirty per cent?

A. That is the opinion, that that improves it.

Q. You think it proves that, do you?

A. I think it improves it.

Q. Could that be done without any chemical change in the ingredients of the flour, at all, in your judgment?

A. Unless you had something there which stimulated the digestive enzymes.

Q. Yes, you would have to have chemical action, or stimulation to great activity of the enzymes? A. Yes.

Q. Do you think that NO₂ gas stimulates enzymes, or kills them?

A. Why, I would say that probably pure NO₂ gas, or concentrated NO₂ gas would kill them.

Q. Nitric acid would kill them, wouldn't it? A. Yes?

Q. Nitrous acid would kill them?

A. In reasonable concentrations, it would.

Q. And nitrogen trioxide would kill them?

A. Same way, yes.

Q. Nitrosyl of chloride would kill them?

A. Under the same conditions it would.

Q. Kill bacteria? A. In considerable quantities?

Q. Yes. A. It did not kill them here.

Q. And, to the extent that these things take place, they would act as a preservative?

A. It evidently did not kill them here.

Q. I know, but to the extent that those things would take place, it would act as a preservative, would it not? If you kill enzymic action, and kill bacteria, in food, you preserve it—you embalm it?

2123 A. It tends to act as a preservative, killing bacteria.

Q. Do you think that any of these substances in there, in dilution or any way, would improve the digestibility of flour thirty per cent, or the gluten of flour thirty per cent?

A. Well, I said I could not tell just what that was.

Q. Is it your idea that bleaching improves the digestibility of the flour, because it stimulates the enzymes?

A. I did not say that. I said I could not tell why.

Q. I know, but there must be some reason for it—chemical action or stimulation of the enzymes?

A. I should say so, yes.

Q. Now, you never heard in your life, of any of these substances used to stimulate enzymes, did you?

A. I don't know that I have of [there] particular things.

Q. What is the smallest dose of nitrites you know of, that produces injurious results in the body, as reported, or in your own observation? A. I haven't any figures.

Q. Can you tell us whether or not a grain has ever been known to produce serious effects? A. I am unable to say.

Q. Or three grains, or four or five?

A. I am unable to say.

Q. I suppose you are familiar with Smiederberg's Work on Toxicology and Pharmacology?

A. I know there is such a one. I cannot say I am very familiar with it.

Q. Isn't he a very noted and standard author?

A. He is one man who has a considerably high standing as a toxicologist and pharmacologist.

Q. Isn't he considered as great a pharmacologist as there is?

A. I don't know about that. He is one of the leading pharmacologists.

Q. Recognized as a standard? A. As one of the—

Q. (Interrupting) You studied at Strasburg? A. Yes.

Q. You know Smiederberg? A. Yes.

Q. Now, isn't he regarded as the most eminent living pharmacologists?

A. Well, I am unable to say. I am unable to distinguish—to grade them.

Q. How? A. I am unable to grade them.

2124 Q. Well, you consider him good authority?

A. As we ordinarily use the word "authority". He is a man who has studied those things, toxicology and pharmacology.

Q. Now, doesn't he tell of a case where four and a half grains of sodium nitrite induced in patients very bad symptoms of poisoning, which, however, depend largely upon the change of the hemoglobin into met-hemoglobin?

A. I am unable to say about that.

Q. Well, I have his work here. It is one that is not translated.

Mr. Scarritt: He says he doesn't know.

Mr. Butler: I will call his attention to it. He studied at Strasburg.

The Witness: If he says he knows it, personally, there is no question about it.

By Mr. Butler:

Q. He quotes Ringer and Merril, known since 1883.

A. Then this is based on the word of these other two gentlemen.

Q. Ringer is a great man, isn't he?

A. I don't know Ringer.

Q. Isn't he the greatest authority there is on bloods?

A. I don't know. I do not think so.

Q. Haven't you ever heard of "Ringer's Solution"?

A. I have heard of Ringer's solution, often.

Q. And you say that is not true?

A. Oh, no, I do not say that is not true.

Q. Now, when great investigators, as great as there are living find that four and one-half grains of sodium nitrite, induced in patients very bad symptoms of poisoning, and produced met-hemoglobin in the blood—

Mr. Elliott: (Interrupting) Is that what he says?

Mr. Butler: Which depends largely.

Mr. Scarritt: On what?

Mr. Butler: On the production of met-hemoglobin in the blood.

Mr. Elliott: I did not understand that to say, that produced it.

Mr. Butler: How did you think it gets in there—by
2125 acetanilid?

Mr. Elliott: I am only speaking about this.

Mr. Butler: Well, I am asking the question.

Q. (Handing the book to the witness) You can read the German, and see if that is not there. Doesn't that mean that the poisonous results are dependent upon the met-hemoglobin? Isn't that true. I cannot read the stuff.

A. This is .3, to .6 of a gramme.

Q. It would be four and one-half grains, translated to grains, wouldn't it? A. Five to ten grains.

Q. Five to ten? Four and a half to nine, was what was given to me. Call it five to ten, so as to be on the safe side.

A. Five to ten, pretty near.

Q. Now, that statement is to the effect that the poisonous effect depended, is it not, upon the met-hemoglobin?

A. The formation of met-hemoglobin, yes.

Q. That was the poisonous effect?

A. That is what he says.

Q. That is what I mean. Now, so we will be perfectly clear. That is a reported instance, in that work, of a dose of from five to ten producing grave symptoms in patients, which symptoms were caused by the production of met-hemoglobin in the blood? A. Yes.

Q. Now, Doctor, in your profession, as in ours, of course, your knowledge and information is based upon the work of other men?

A. Yes, in connection with my general study of the subject.

Q. Wouldn't you say that this book which I have just handed you, is a book of standing and repute?

A. It deserves respectful consideration.

Q. Yes, I know—no supreme court about it, or anything like that? A. No.

Q. But it is a good work, is what I am trying to get at.

A. Yes.

Q. There is no one that you know of, that is entitled to greater respect than Smiederberg?

A. I have great respect for him. I studied under him.

Q. And you love his memory, as a great man, do you?

A. I think he is a great man, yes.

2126 Q. Now, as to the saliva. Mandel has translated Hammerstein, "A Text Book on Physiological Chemistry", and there seems to be at Page 287, a description of saliva,—
"Salivary Glands and the Saliva" and not a word about urea, is there?

A. I do not think Hammerstein mentions urea as being present in the saliva.

Q. And there is a table of the contents, further on, isn't there? A. Well, I don't remember that he does.

Q. You have looked at this?

A. Oh, I have used Hammerstein.

Q. As a matter of fact, since this theory of urea being a defense against bleached flour nitrites, came to your mind, you are reasonably well satisfied, are you not, that the literature on that subject has been exhausted by you and your associates on that score? You are not testifying snap-shot on that, here, are you?

A. Oh, no. But I wouldn't want to say—I wouldn't want to answer that question that way.

Q. As far as you know, it is?

A. I don't know of any except this—if I may answer the question,—that urea is very readily soluble in water, and is present in the blood, and the blood circulates to all parts of the body, and carries these soluble constituents.

Mr. Butler: I move to strike that out.

Q. I am talking about the urea in the mouth.

The Court: Oh, well.

By Mr. Butler:

Q. Neither one of the flours that you used in your digestion experiments, was the flour seized? A. I think not.

Q. Got up some other kind of flour for you?

A. I don't know anything about that.

Q. Well, it was not the flour seized? A. I think not.

Q. Of the "Purity" flour?

Mr. Scarritt: What do you mean by "They got up some other kind."

Mr. Butler: I mean there was furnished to him some other kind of flour, one of them thirty per cent, more digestible than the other.

2127

Redirect Examination

By Mr. Elliott:

Q. Now, I want you to look at this book that was handed you, Doctor. You read German? A. Yes.

Q. Tell me if that paragraph doesn't read this way: "Doses of .3 to .6 grammes of sodium nitrite produce severe poisonous symptoms, when administered to sick persons, which symptoms were referable, in large part, to the conversion of hemoglobin into met-hemoglobin."

A. That is what it says, yes, sir.

Mr. Butler: I used the word "patient".

Mr. Elliott: I don't know what you used. I am just stating what is there.

Q. I will ask you, Doctor, if this substance, amyl nitrite, which Mr. Butler interrogated you about, is or is not a volatile nitrite,

A. It is a volatile nitrite.

Q. And what kind—is it an organic or inorganic nitrite?

A. Organic.

Q. Do you understand there is any amyl nitrite in flour, bleached by this Alsop process?

A. Not that I know of.

Q. You have been interrogated as respects poisons, and amount and so on. I will ask you if, in your knowledge, this gentleman that you studied under in Strasburg, that has been so highly extolled or any other noted authority, has defined amounts beneath which a substance cannot be poisonous, and if so you may state what.

Mr. Butler: Objected to as improper redirect, and immaterial, and I would like to cross-examine any gentleman whose definitions of poisoning they want to prove.

The Court: Well, I'll tell you, we are spending a great deal of time in this case on the definition of the [work] "poison." Now, there is one side saying that strychnine is poison, and there is another side saying it is not poison, except in certain quantities.

Mr. Elliott: That is right.

The Court: Now, I suspect that, some of these times, 2128 when we get through in this case, that I will have to tell the jury what the word "poisonous" means, because of the use of the English language. But, both sides are going into it, and I will throw down the bars, and receive all your definitions, and then, some of these times, I will give mine, because the law requires me to give it. The English language

is used in this statute, and we are not very much concerned, I don't believe, in what a lot of lexicographers, arrayed upon one [said], and upon the other side, are going to say.

Mr. Butler: My point was this, if I may state it, in respect to this particular matter. My understanding of the rule is that medical books may not be offered in evidence, subject, however, to the right of cross-examining any expert, you can present him the work that is different from what he says, and ask him if he agrees with the standard work from which he draws his learning. Now, that is not the case here. I did not ask him anything about the definitions of poisons, here, with respect to the authorities, at all. Now, Dr. Haines is sitting here in the court room and has written a large number of definitions of poisons. We will assume, for the purpose of my point, now, may they put on this gentleman—I think perhaps that is what this question calls for—to give the definition by some other eminent man—Dr. Haines, or somebody else—of a poison? Now, I want to cross-examine the man who defines that, to see whether or not we can agree, but I do not think they can put in the books, and let me cross-examine the book, —not under the state of this record.

The Court: The case which I referred to yesterday, and which I found within three minutes after commencing a search for it, was the case of Union Pacific Railroad against Yates, tried before I was on the bench, by Judge Shiras, of the Northern District of Iowa, as I recollect it, sitting at Council Bluffs. I was mistaken when I said Judge Sanborn wrote the opinion.

It was Judge Thayer, speaking for the court, with 2129 reference to scientific books. As I understand it, in this case, the government claims that strychnine and nitrites and nitric acid and prussic acid and a whole lot of other things are poisonous.

Mr. Butler: Yes, sir.

The Court: As I understand it, your side of the case, and your witnesses claim that those are not poisons.

Mr. Scarritt: We claim, Your Honor—

The Court: (Interrupting) Pardon me for interrupting you. As I understand this, your[said] will claim it is not poison unless used in such quantities as to work some physiological harm. Now, I will hear you, Judge.

Mr. Scarritt: I was going to say, we claim that that has nothing to do with this case, and that it is all outside of this case. That has been our objection all the time.

The Court: But, the statute says "If any poisonous substance be added, which may" and so forth.

Mr. Scarritt: Which may be deleterious to health.

The Court: Deleterious, and so forth. Now, it does seem to me,—but I am not seeking to limit you, and do not intend to, but I want my own position made known—it does seem to me we are spending a great deal of time here in making dictionaries out of witnesses.

Mr. Scarritt: I think so, Your Honor.

The Court: Do you recall your question, then?

Mr. Scarritt: No, sir, because the witness has already been made a dictionary, for an hour and ten minutes, and we ought to have some chance.

The Court: Now, I am going to give you a chance. That criticism is unwarranted.

Mr. Scarritt: I beg your pardon. I did not intend to criticize you.

The Court: No. The case I referred to yesterday was Union Pacific Railroad against Yates. The case, originally, was Yates against the Union Pacific Railroad, but, of course, in the appellate court, it was Union Pacific against Yates, 79 Fed., 584. You will find under that decision, that these books are inadmissible.

Mr. Scarritt: I think Your Honor has stated the rule entirely correctly.

The Court: That was a case of medicine, which everybody knows is not an exact science, although every doctor will swear it is.

Mr. Scarritt: Same as chemistry.

The Court: Running down every school except his own. Homeopaths, of course, will not believe what allopaths say, and so on, and so on. I have been watching to see whether chemistry is an exact science, and sometimes during this case I have thought it was, and sometimes I am up in the air about it.

Mr. Scarritt: I have been up in the air all the time. I would like to suggest this, if Your Honor please, that the rule that is laid down there, and the general rule, as I understand it is, that, if the cross-examination does refer to any work which the witness says is a standard work, that then, on redirect examination, you can call the witness's attention to the same work, or to other works that contradict that work.

Mr. Butler: That is the rule as I understand it.

Mr. Elliott: I will withdraw my question.

The Court: I intended to let him answer it.

Recess was then taken for five minutes.

The Court: The witness may answer the question.

Mr. Elliott: I have withdrawn the question, Your Honor.

The Court: Very well.

By Mr. Elliott:

Q. Mr. Butler, Dr. Rockwood, made some statements to you with reference to the effect produced from medicinal doses of nitrites. I want to ask you if these doses of nitrites
2131 which you have testified to taking, were medicinal doses of nitrites.

A. Two grains is the average medicinal dose, for a man of my size.

By the Court:

Q. Why do you keep saying—I don't say you are wrong—but why do you keep saying "A man of my size"? Could a man weighing two hundred pounds take twice as much as a man weighing one hundred pounds?

A. My understanding is that it would have less effect on a muscular man weighing two hundred pounds, than it would on a man weighing one hundred pounds.

By the Court:

Q. Suppose one man is heavy, but soft and flabby, like I am?

A. It would not necessarily act in any proportion to the weight.

By the Court:

Q. Some athlete or foot racer would take more than I would, wouldn't he? A. Very possibly.

The Court: All right.

By Mr. Elliott:

Q. I will ask you, have you personal knowledge of the occurrence of nitrites in the saliva of the human being?

A. I have.

Q. Have you any information that will enable you to tell us, within what range they occur, there? How do they vary in amount?

Mr. Butler: I will object to that.

The Court: He may answer that.

By Mr. Elliott:

Q. Your personal knowledge, I mean.

A. I have tested and seen a great many samples of saliva tested for amounts, and I think that, ordinarily they run—well, the average would be between one and two parts per million.

Q. Can you give us, from your personal knowledge, any figures as to the extremes you have noted?

2132 A. I had my class, last winter, in physiological chemistry, make quantitative tests of their own salivas, each one, and report the result.

Q. What was the maximum quantity?

A. The maximum amount was—

By Mr. Butler:

Q. (interrupting) You did not do that, did you?

A. They did it under my direction. I did not do it.

By Mr. Butler:

Q. Did you see it, and measure it?

A. I saw it done. The maximum amount was 1.6 parts per million.

By Mr. Elliott:

Q. Mr. Butler also questioned you with respect to your recent conference with Dr. Haines, or your recent acquisition, if it were the fact, of the fact that urea in the system may constitute a defense for nitrites, and, as I understood his question, it implied that your opinion that I asked you to express as to the possible harm from eating bread containing this nitrite reacting material, was based on that assumption, that urea would take care of it. Now, I want to ask you if, before this suit, you had not, under oath, stated the same opinion that you have stated to me, that bread made from flour that has been bleached by this Alsop process was, in your judgment, perfectly harmless.

Mr. Butler: Objected to as immaterial. A man cannot justify his opinion by saying he swore it somewhere before.

The Court: Go on.

A. I had made such a statement before.

By Mr. Elliott:

Q. Now, Mr. Butler asked you if, on the assumption that you killed enzymes and bacteria, if it would not be using a preservative. I will ask you if your digestion experiments indicated to you that you had killed enzymes and bacteria.

A. No indications that I had done so.

2133 Mr. Elliott: That is all.

Mr. Butler: I move to strike out his experiments, on the ground that no foundation was laid, for the flour. I understood a promise to be made to connect up, with one sample, but as to the others, they cannot tell whether it is bleached or unbleached. There is no proof of how much nitrite was in it.

The Court: I understood the gentleman to say he knew it had no bleaching applied.

Mr. Butler: No, he did not say that.

Mr. Elliott: Did you test this bleached flour, for nitrites?

The Witness: Yes.

Mr. Scarritt: He stated that in answer to Mr. Butler's question.

The Court: Did you?

The Witness: I tested for nitrites, yes.

Mr. Butler: But he has not said that any of those were bleached or that they were not.

The Court: No.

Mr. Butler: And the proof is that it would go in, four times as fast from the air, if their witnesses are to be believed.

The Court: I will let it stand.

Witness Excused.

Emil G. Beck, called as a witness on behalf of claimants, being first duly sworn, was examined by Mr. Elliott, and testifies as follows:

2134 Direct Examination

Q. Your name, please? A. Emil G. Beck.

Q. And your residence? A. Chicago, Illinois.

Q. Your occupation? A. Surgeon and physician.

Q. Will you give us briefly, your qualification, Dr. Beck?

A. I have practiced surgery in Chicago for the last twelve years. Have done some experimental work in the administration of subnitrate of bismuth in the sinuses and epsis(?) cavities of the body.

Q. By your qualifications, I will state that I want you to give us your studies, and so forth?

A. Well I graduated from the University of Illinois, and took a post graduate course in Europe.

Q. In what place? A. In Berlin.

Q. I will ask you what experience have you had with the administration of sub-nitrate of bismuth?

A. During the past three years I have had considerable experience with it, devoting practically most of my time to the study of the application of it, and have published a large number of books and articles on that.

Q. I will [have] you a pamphlet entitled "Toxic Effects from bismuth sub nitrate," and ask you if you, or your brother Carl Beck is the author of that pamphlet.

A. I am the author of this.

Q. How many cases are gathered together in that pamphlet.

Mr. Butler: That is objected to on the ground that the pamphlet speaks for itself, incompetent, irrelevant and immaterial, because we are not trying sub-nitrite of bismuth.

Mr. Elliott: Dr. Boos gave some testimony in reference to this pamphlet, and says there were 12 cases in it.

The Court: He may answer it.

A. Of Bismuth nitrate poisoning?

Mr. Elliott: The administration. How many cases treated in that pamphlet.

A. Seven cases are treated.

Mr. Butler: Seven treated?

Mr. Scarritt: Seven treated—

2135 The Witness: I beg pardon. Seven histories are given twelve cases altogether.

Mr. Butler: Twelve cases altogether.

A. Yes. Seven histories are given.

Mr. Elliott: There is nothing turns on that, I thought it was seven.

Mr. Butler: There is much turns on that. How is this material?

The Court: I cannot see. I am waiting to see.

Mr. Butler: Are we going into the subnitrate business now?

Mr. Elliott: You have been in every other business.

Mr. Butler: Cross-examination is a different thing from a defense.

Mr. Elliott: Now, take the seven cases whose histories are in there, Dr. Beck, and tell me how many of them are diagnosed there as poisoning by the bismuth.

Mr. Butler: That is objected to on the ground that the book speaks for itself.

The Court: I do not understand this. How are you trying to make this book evidence, Mr. Elliott?

Mr. Elliott: Dr. Boos, when he was testifying referred to this pamphlet as giving twelve cases, as I understood it of nitrite poisoning, and he said they were due to the administration of four and five grain doses of bismuth-sub-nitrate to infants.

The Court: Of course I cannot regulate that.

Mr. Butler: And it was brought out on cross-examination, as I recall it—

The Court: Did you bring this out on cross-examination? Or did Mr. Butler bring it out?

Mr. Elliott: Mr. Butler brought it out on direct examination.

The Court: Of course, I cannot recall—

Mr. Butler: Oh, no—

2136 Mr. Elliott: Maybe I did on cross-examination.

The Court: Now, gentlemen, let us not give or six talk at once. I get so nervous I can almost fly. You get up these contradictions, and I cannot recollect, and I hope we do not find it necessary to go back and examine this record. If you say Mr. Butler brought it out, you may go ahead.

Mr. Elliott: I will not say that positively.

The Court: Judge Scarritt, do you say he did?

Mr. Scarritt: I made a note of it. That is my best recollection. I can look at my notes.

The Court: Go ahead. I do not recollect.

By Mr. Elliott:

Q. How many cases of these seven cases whose histories were given were poisoning by bismuth.

Mr. Butler: Wait a moment.

The Witness: Four.

Mr. Butler: Now, wait a moment, I move to strike that out. I have never been permitted to state my position about a single objection since this thing came up. Judge Scarritt stands up and talks until the Court rules. Now, my point is this, may it

please Your Honor, that, here is a book that is published. Is it proper for them to take any man, and put him on the stand, whether he wrote the book or not, and let him state what is in the book? Now, that is what they are doing. I object to it as not the best evidence, irrelevant, immaterial and violative of every rule of examination ever known.

Mr. Elliott: When the man is the author of the book?

Mr. Butler: Yes, I don't care if he made the paper that made the book. The book shows what is in it.

The Court: That makes it more objectionable, if he is the author of the book, for the reason of the very argument of Judge Thayer, speaking for the Court of Appeals, because the witness can be cross-examined. Some courts have held scientific books that have been written by authors now deceased might be used, but here is a witness that is living, in Court, on the stand. If he wrote the book it becomes that much more objectionable.

Mr. Butler: There is no objection to this book going to the jury.

The Court: Very well, then.

Mr. Butler: And then they will know whether Dr. Boos told correctly the cases that were reported.

The Court: Mark that book as an exhibit.

Mr. Scarritt: It has not been offered as an exhibit.

The Court: It has not?

Mr. Scarritt: No.

Mr. Butler: But I do object to this man interpreting what is in it, because the book shows what is in it.

Mr. Scarritt: You are right about that.

The Court: Ask another question, Mr. Elliott.

Mr. Scarritt: Let me make this suggestion, Your Honor: the only reason that this evidence is at all competent is because it is either in contradiction or explanation of Dr. Boos' testimony. If it is, then it is perfectly competent. If it is not this gentleman has no more right to read from this book than I have, or anybody else has; but, if we are correct in our position that it is in explanation of, or in contradiction to Dr. Boos' testimony, when he referred to this identical book, then it is competent.

The Court: What is the point you make. Do you want that book in or out?

Mr. Scarritt: No, sir.

The Court: Do you want it in or out?

Mr. Scarritt: I don't know anything about that.

Mr. Butler: I want it in view of their criticism of Dr. Boos.

2138 The Court: Do you want it in, Mr. Scarritt?

Mr. Butler: I don't want this man to tell what is in it, because the book tells that.

The Court: Do you want it in, Mr. Elliott?

Mr. Elliott: I had not thought of introducing it. I have no possible objection to it.

The Court: You do not understand my question. Do you want that book in?

Mr. Elliott: No, I have no desire to have it in.

Mr. Butler: Then, I move to strike out this testimony from beginning to end.

Mr. Scarritt: Strike it out then, and begin over again.

The Court: Very well, stricken out.

Mr. Scarritt: Now ask him without reference to the book. You do not have to have the book.

By Mr. Elliott:

Q. How many cases, doctor, are you familiar with dealing with poisoning that has resulted from the administration of bismuth-sub-nitrite?

Mr. Butler: Just a moment.

The Witness: Poisoning—

Mr. Butler: Did you hear me say wait a moment.

The Witness: Yes.

Mr. Butler: Why, didn't you wait then.

The Witness: I beg pardon.

Mr. Butler: Now, the point is this, when Dr. Boos was upon the stand, in answer to somebody's question, with this book in his hand referred to what was printed in the book as reported cases. Now, they say that he has not told it right. Now, the book is the best evidence, and as soon as we get a chance we will offer it in evidence. That does not make the inquiry as to whether nitrite of bismuth poisoned one, or forty

or a dozen or any, material to this case. There is no claim that it is in flour. It is not addressed to any issue in the 2139 pleadings,—a collateral matter. They may not now enter upon the field of whether or not nitrite poisoning results from administration of sub-nitrite of bismuth, and try that, as an independent issue, and call witnesses upon that point.

The Court: I will hear you, Mr. Elliott, as to why it is competent.

Mr. Elliott: If Your Honor please, all I have got to say is simply this. I am bringing this out by way of explanation. If Dr. Boos did make a mistake, I am sure that he did it unintentionally. I do not mean for a minute to imply that Dr. Boos would have come up here and made a mis-statement, not for a minute, but I understood his testimony to be that there were twelve recorded cases.

Mr. Butler: Recorded in the book?

Mr. Elliott: Reported in that; and that amounts,—those cases, I don't know whether he said all of them, but certainly most of them I believe he said were deaths of infants due to nitrite poisoning by the administration of four and [give] grain doses of bismuth-sub-nitrite. Now, that is what I understood Dr. Boos' testimony to be.

The Court: All right. That gets down to the question assuming that Dr. Boos so said.

Mr. Elliott: On that theory I think it is admissable.

The Court: Yes, that is just the point. Put the book in.

Mr. Butler: Yes, I want it to go in and offer it independently.

The Court: Objection to this question is sustained.

Mr. Butler: No objection to the book or any proof as to what is reported in the book, if it is an original investigation.

The Court: I sustained this objection.

By Mr. Elliott:

Q. Do you Dr. Beck, [—] of recorded cases of instances of accidental poisoning by nitrites? A. Yes.

Q. Will you please tell what they were, and what amount of nitrite was. A. You mean fatal cases?

2140 Q. Yes.

Mr. Butler: I will object to that as irrelevant and immaterial,—

Mr. Elliott: No, not fatal cases, merely. I just said accidental poisoning.

Mr. Butler: Wait a moment. Unless it be made to appear that they are nitrites of the kind claimed to be in bleached flour, and that the details of accidental poisoning cases do not make any difference,—

The Court. I cannot see any difference whether it is accidental, suicidal or homicidal.

Mr. Butler: I cannot see it. If they want the witness' opinion as to what would be fatal, I have no objection to that.

Mr. Scarritt: Now, he went into—

The Court: I am sustaining you, Judge Scarritt.

Mr. Scarritt: But, what I am trying to get at is,—

The Court: I will hear you although I am with you.

Mr. Butler: Now, is this, Mr. Elliott, another way of getting in what is in here?

Mr. Elliott: No.

The Court: Go on, Judge Scarritt. I will hear you, although I am ruling with you.

Mr. Scarritt: I do not want to be heard if you are ruling with me.

The Court: Go on and answer.

A. The cases recorded are from the Pennsylvania Hospital, the Pennsylvania University where 60 to 120 grammes of subnitrate of bismuth had been given by Dr. Pencost, and—

Mr. Butler: (Interrupting) Wait a moment.

The Court: Is Dr. Pencost still living?

Mr. Butler: Is that matter reported in this pamphlet?

The Witness: It is referred to in that.

Mr. Butler: It is one of the cases in this pamphlet Dr. Boos referred to?

2141 The Witness: Yes.

The Court: Objection sustained.

Mr. Elliott: The amounts are not given in there.

Mr. Butler: Dr. Boos did not give any amounts.

Mr. Elliott: Yes, he did.

Mr. Butler: The book shows.

Mr. Scarritt: Now, your Honor, he offers that book himself. We are offering the witness—

Mr. Butler: It is not received.

The Court: He says he is going to offer it if he gets a chance. Do you gentlemen want this book in.

Mr. Scarritt: I don't know whether I do or not. I have not read it.

The Court: When do you think you will be ready to answer that?

Mr. Scarritt: What is that?

The Court: When do you think you will be ready to answer that plain question as to whether you want that book in evidence or not.

Mr. Scarritt: It is not a plain question.

The Court: Yes, it is a very plain question.

Mr. Scarritt: I agree with your Honor that I do not think the book is evidence. I do not think it ought to be offered in evidence. I do not think the witness ought to read from it. I said, your Honor, when I got up here, I did not think it was competent evidence.

The Court: Well, I will hear you.

Mr. Scarritt: Now, the witness can state, the witness can state of his own knowledge what cases had been, in answer to Dr. Boos who testified.

The Court: Well, read that.

Mr. Scarritt: That he had knowledge of only one case in all his practice.

The Court: What are you reading from.

Mr. Scarritt: I am reading from my notes of his direct examination. He had knowledge of only case of this
2142 kind of poisoning, and that he had read in this particular book of twelve cases, but none of those were cases where the party was sick or suffering or poisoned by bread, but, with some—

The Court: Sit down Mr. Elliott, I am going to hear Judge Scarritt.

Mr. Scarritt: I am through.

The Court: I want you to be through, but I do not want to interrupt you until you are through.

Mr. Scarritt: What I mean to suggest is this. You got mixed up here on the question of admissibility of testimony, and I agree thoroughly with your honor in reference to the disqualification of this book, but that does not prevent us from examining this witness as to other kinds of poisoning of nitrites, nitrates, or all of those substances that Mr. Butler has stood here for three weeks and examined and cross-examined these witnesses about, without saying a word about the bleached flour, and the nitrites that are in this particular flour. Now, he spent an hour and ten minutes without interruption on the last witness, examining him about every kind of poison on earth, and now we are asking about one particular poison which has been adverted to by their own witnesses, and he gets up here and objects to that, and we want to show that, how it could be, and how many cases there could be, and what kind of stuff it was so the jury will understand.

The Court: Now, wait until Judge Scarritt gets through, because I intend this shall be the last argument made on admissibility of evidence until I invite it.

Mr. Scarritt: That is the first argument I have made. I have objected but I have not made any argument.

The Court: I don't agree with you on that. Now, wait until he is through. Let us have this out. They are in consultation now as to whether this book goes in or not.

Mr. Butler: Here is the testimony of Dr. Boos.

The Court: Is this a transcript?

2143 Mr. Butler: Yes. Whether it was referred to in direct examination, I cannot remember.

Mr. Scarritt: If you will look, Mr. Butler, you will find it in the direct examination.

The Court: Here it is, haec verba from the reporter.

Mr. Scarritt: In the direct examination?

The Court: I do not know.

Mr. Butler: This is in the cross-examination by Mr. Elliott.

Mr. Scarritt: Just because this gentleman has written a book, it does not disqualify him as a witness, and if he knows even what is in the book, of his own knowledge he can testify to it. It is an elementary principle of evidence that a man can testify to what he knows if it is germane to the issues of the case, and the reason it is germane to the issues of the case is because it has been allowed to the witnesses on the other side.

Mr. Butler: Now, I would like not to argue, but to state merely my position. Dr. Boos went on the stand. Dr. Boos referred to this book, which he offered to counsel at the time,—had it in his hand at the time,—and said certain cases were reported in it. Now, if they are not reported in the book, the book is admissible evidence on that subject. There isn't any doubt about that at all, and if it is claimed he did not testify correctly as to what is, in substance, given in the book—

Mr. Scarritt: No claim of that kind made.

Mr. Butler: (Continuing) I haven't any objection to it being given. So much for that. Now, the court has already ruled, now since this witness went upon the stand, that the original inquiry, as to the effect of sub-nitrate of bismuth was not material, as I understood the legal effect of your Honor's rulings.

Mr. Scarritt: Is that correct.

2144 Mr. Butler: Now, if that is correct,—

Mr. Scarritt: (Interrupting) I would like to know if that is correct.

The Court: Now, Mr. Scarritt, I am going to have you keep quiet until Mr. Butler gets through, then I will hear you again and we will have this out.

Mr. Butler: Now, if that is correct, that is the end of the chapter, and this sub-nitrate case reported there would not be admissible in evidence, if we had a good witness here who knew the facts. Now, this question is not what he has seen done, but what somebody has reported, as I caught the substance of his answer, as having occurred at Philadelphia in the Pennsylvania Hospital. Now, if it be admissible at all, we must have evidence of it, and not rumors. This case has been characterized on the part of the defense from the time they commenced up to the present moment by the calling of witnesses who confessedly did not know touching the matters that they were interrogated about. If they would bring a miller from the mill with a pipe, they would bring somebody who did not know whether it was cleaned out, or how long it had

been used. They bring men who live in offices across the street to testify that there was no odor in the mill, and now, as I understand the question, and the point of the objection is this: That this testimony is hearsay and on an immaterial point altogether. Now, that is all I want to say about it. I do not understand that the rule prohibiting hearsay testimony is relaxed, because a man has happened to take a degree at college and comes into Court and says, "I heard that there happened in Bellevue Hospital in New York or abroad or some place else," or it was published in a newspaper or the "Modern Miller" or a scientific journal so and so, because we cannot cross-examine these journals. We cannot cross-examine hearsay. We want to do business with men who have the means

2145 of knowledge, and who pretend to know, and from the beginning to the end this defense has been characterized by the production of men who did not know, just as the last witness who did not know where the flour came from which he proved was so digestible. The reverse order is used, and the time has come when they ought to be required to bring proof instead of rumor. Nobody will ever say that the flour of the last witness, to use it as an illustration, was the same kind, except as to bleaching. Nobody will ever say it. But here comes in a whole shoal of it. Not only the circumstances, but conclusions derived from hearsay circumstances, and here comes a man now who is asked to testify what was in his own book, and they decline to tell the Court whether or not they want the book to go to the jury, and now they want him to testify touching the subject [or] sub-nitrate poisoning, when he does not pretend to have seen the patient, but he hears some rumors as I understand it, from the State of Pennsylvania about what happened—

Mr. Scarritt: As I understand you you offered the book in evidence.

Mr. Butler: I say I am willing, if it is claimed that it shall go in.

Mr. Scarritt: Let it go in.

The Court: All right.

Mr. Butler: If it is claimed Boos misrepresented that book I am willing to let it go in, let the jury read it and see.

Mr. Scarritt: Let it go in. Let the whole book go in.

The Court: All right.

Mr. Scarritt: That is all with this witness.

The Court: I just wanted to say this, according to the transcript furnished by the stenographer I assume,—the folios I

hold in my hand shows that what Dr. Boos said on the subject—without stating what he said,—was in the cross-examination by Mr. Elliott.

Mr. Scarritt: You will find it in the direct too.

The Court: Well, I don't know. I find it here in the cross-examination.

2146 Mr. Scarritt: Well, that is so but it is also in the direct.

The Court: In this paper I have. I assume it came from the stenographer. It is a manifold copy.

Mr. Scarritt: They haven't, probably, all of the direct there, have they?

The Court: Yes, the direct is here, and the cross-examination is here. The direct is here by Mr. Butler.

Mr. Scarritt: In order to get my notes right I would like to examine it.

The Court: Now, here is the paper. It is the cross-examination by Mr. Elliott. There is no use wrangling about that.

Mr. Scarritt: By Mr. Elliott.

The Court: Yes, sir, by Mr. Elliott. Here it is right here. Now, I will be very much obliged to counsel from this time on, and I am not criticizing what has been done,—if you do not have arguments as to the admissibility of evidence unless I invite it; otherwise we will not be through with this case this summer. As I understand you are through with this witness, Mr. Elliott.

Mr. Elliott: I want to ask him one or two questions.

Q. To what extent, doctor, have you administered bismuth-sub-nitrate.

Mr. Butler: That is objected to as irrelevant.

The Court: Objection sustained.

Mr. Scarritt: We except.

Mr. Elliott: I will have to withdraw the witness then.

Mr. Helm: I understand this book is in evidence. It has not been marked.

The Court: That book goes in evidence as exhibit 270 by stipulation of counsel on both sides. Whose exhibit is it?

Mr. Elliott: Claimants exhibit.

Witness excused.

2147 Julius T. Willard, called as a witness [of] behalf of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. You may state your name?

A. Julius T. Willard.

Q. Where do you reside?

A. Manhattan, Kansas.

Q. Professor, give us your education and qualifications.

A. I was graduated from the Agricultural College of Kansas at Manhattan, Kansas. I studied at the John Hopkins University.

Q. What is your present position?

A. I am professor of Chemistry in the Kansas State Agricultural College.

Q. How long have you held that position?

A. With that particular title I think eight years.

Q. Have you any connection with any of the state institutions?

A. Under the food and drugs law I have had charge of food analysis for the Board of Health.

Q. Of the State of Kansas? A. Yes, sir.

Q. What has been your principal line of work?

A. The teaching of general chemistry, and especially with relation to agriculture; and plant and animal nutrition in that connection.

Q. Well, now, have you interested yourself in any way with this question of bleached flour? A. I have.

Q. When, and under what circumstances did you first begin your investigations?

A. When it was first described in the papers.

Q. When was that.

A. That I should judge was about six years ago.

Q. Under what circumstances did you start any investigation?

Mr. Butler: I object to that as immaterial. I have no objection to what he did or what he knows.

The Court: Objection.

Q. How long have you been engaged in investigating this subject.

A. I began about four years ago last March and at that time a number of samples of flour were sent me by the secretary of the Kansas State Board of Health, with the request to state whether they had been artificially bleach-

2148

ed or not, and I, in considering the matter thought of this Griess test for nitrites as possibly available, and was the first one to use that test, so far as I know.

Q. I will ask you upon what re-action the Griess test for nitrites and nitrous acid depends?

A. There is, first the formation of the diazo compound, which then forms a dye, with an amino compound, naphthylamine. The Dyaso compound is formed with the sulphonylic acid, and then that reacts with the naphthylamine to form a dye of very high coloring power.

Q. Now, is that action of nitrous acid, under these circumstances the general one that occurs?

A. It occurs quite frequently, especially at low temperatures, but probably quite as frequently a different reaction takes place. Instead of the diazo compound, free nitrogen is produced by the inter-action of the nitrous acid, and the amino compound.

Q. Do amino compounds occur in the animal body?

A. They do.

Q. Give us an example of one of those compounds.

A. Urea is a prominent example.

Q. How does urea act with nitrous acid.

A. The two interact with the production of free nitrogen, and carbon dioxide and water.

Q. Is that a well known reaction in chemistry?

A. Yes, sir. This general reaction is taught in all elementary chemistry.

Q. Have you yourself used bleached flour, Professor Willard? A. I have.

Q. I will ask you, in your use of this flour, and particularly as to bread made from it, let me ask you, first, do you mean by using it, that you have used it in your family?

A. I have.

Q. Have you ever noticed in bread, made from bleached flour, any difference in odor or taste from what is present in bread made from unbleached flour?

A. I have never noticed any such distinctive odor or taste.

2149 Mr. Butler: That was not the question.

The Witness: I beg your pardon.

Q. The question was have you ever noticed any difference.

A. I have never compared them directly from the same flour.

Q. Well, have you ever noticed any unpleasant odor, or unpleasant taste in bread made from bleached flour?

A. I have not.

Q. Have you made any scientific test of bleached flour in your department of the agricultural college. A. I have.

Q. And what has been the nature of those tests or investigations?

A. The comparison of the relative rate of digestion of bleached flour and unbleached flour, also baking tests.

Q. Now, what has been the character of the tests you have made as to digestibility?

A. I have tried them with pepsin, pancreatin, diastase and saliva. One with saliva.

Q. When you say you have tried "them" what do you mean, —the bread or the flour or certain constituents of the flour, or all of them. How is that?

A. The experiments were made with flour. The intention was to have them as strictly parallel as possible.

Mr. Butler: I move to strike out the intention as immaterial. I have no objection to what was done.

The Court: Motion sustained.

By Mr. Elliott:

Q. Your digestion experiments were carried out with the flour itself. A. Cooked flour.

Q. Cooked flour. A. Yes, sir.

Q. Not with the bread. A. Not with the bread.

Q. Did you make any separate determinations as to starch and gluten digestion.

A. The action, or experiments with diastase and saliva, had reference to the change of starch while the experiments with pepsin and pancreatin had reference to the change of the nitrogenous constituents of the flour.

Q. Now, have you made any baking tests? A. I have.

Q. What was the nature of those tests?

A. They were made from the same flours, in part, the third series. Then I had baking tests upon other flours also.

Q. Now, what were the baking tests made to ascertain? What was the purpose of them and what was the result of them.

A. To ascertain whether or not there was an observable difference in the baking qualities of the bleached and unbleached flours.

Q. What did you conclude as the result of your experiment?

A. That there was no difference.

Q. Now, how many digestion experiments did you conduct, Professor Willard.

A. There were about ninety-four comparisons.

Q. Could you give us a typical experiment with each one of those substances, with each digestive fluid I mean?

A. Yes, I can.

Q. Give us such a one.

A. Here is one with pepsin digestion in which ten milligrams of the pepsin was used, and there were five hundred cubic centimeters of the liquid bread. The flour contained 2.25 per cent of nitrogen.

Q. 2.25%

Q. Could you give us that in terms conveniently? Well we will figure that out. Go ahead.

A. In the digestive material—

Q. Was the unbleached flour tested for nitrites?

A. It was.

Q. And were there any nitrites in it. A. No.

Mr. Butler: Do you mean that there was 2.25% of nitrites?

A. No, there was 2.25 parts of nitrogen in the flour, represented the composition of the flour.

By Mr. Elliott:

Q. Now, let me ask you this. Did you make a quantitative determination of the nitrite reacting material in the bleached flour?

A. Yes, sir, in this case. Not in all cases.

Q. In this case what was it?

A. There was none—well, you asked for the bleached. There was none in the unbleached. We had flours bleached to two different degrees. In one there was .6 of a part of nitrous anhydrid per million. In the other 1.1 part of nitrous anhydrid per million.

Mr. Butler: What would that be calculated as nitrogen?
2151

A. I would have to make a calculation.

Mr. Butler: What is the formula of nitrous anhydrid?

A. N2O3.

Mr. Butler: That is nitrogen tryoxide? A. Yes, sir. If I have made no mistake, the one would have .22 parts of nitrites nitrogen per million, and the other .4 part nitrite nitrogen per million.

By Mr. Elliott:

Q. That is the flour.

A. That is the bleached flour. Now, after these were submitted to the peptic digestion—

Mr. Butler: Are you going to give your conclusions now?

The Witness: I was going to give these figures.

Mr. Bueler: I will object to any conclusions, as there is no conclusion laid as to the flour.

By Mr. Elliott:

Q. What was this flour you had, Professor?

A. This flour was obtained from the mill in Manhattan. The unbleached sample was taken from the stream—

Mr. Butler: (interrupting) Wait a moment. Did you do it?

A. I did not do it personally.

Mr. Butler: Did you see it done?

A. I did not.

By Mr. Elliott:

Q. Who did do it.

A. Now, this sample I started to speak of, the miller did. These experiments were done without reference to this case, of course.

Q. We understand that.

A. Co-operation with the mill company.

Q. Where did you get the flour and how did you get it.

Mr. Butler: I shall object to his characterization of any of it as bleached and unbleached. Now, your Honor will notice that the amount of nitrite nitrogen in this flour which he says was bleached, was .22 which is one fourth of one 2152 part, and they have told us that the unbleached flour contains about twenty times as much. Now, it has been testified here that there is no way known to tell what flour is bleached, and what flour is unbleached. Now, I must object to witnesses coming on here who have no knowledge of the flour and saying that it is bleached, and that it is unbleached.

The Court: It is hard to so marshal the evidence, as to put it all in its regular order. I assume you are going to show the integrity of this sample, Mr. Elliott, are you?

Mr. Elliott: I hope the witness can tell us.

Q. Where did you get the flour, and how did you get it, and how do you know it was bleached.

The Court: Was it bleached in the laboratory.

The Witness: No. We had three separate samples. My assistant was present when the samples were taken, and saw them. This one that I started to read the figures on was a later one though, and he was not present.

Q. You have one which your assistant saw taken?

A. Yes, sir.

Q. And your assistant is here? A. Yes, sir.

Q. And he knows them, does he, to be bleached and unbleached from the same flour? A. Yes, sir.

Q. Now, deal with that flour then.

Mr. Butler: We will leave this where it is, then, and start out new?

Mr. Elliott: Yes.

The Court: This is one his assistant saw taken from the mill?

The Witness: Yes, sir. It was taken in October 1908.

Mr. Butler: What mill?

A. The Manhattan Milling Company, Manhattan, Kansas. This flour contained 1.84 per cent of nitrogen. I have to give this figure in order to show the extent to which the different samples were digested.

Mr. Butler: Both samples tested the same of nitrogen?

The witness: Within the limits of experimental error. Well, they were the same, really. One was 1.84 and 1.83, in each case the flour bleached and unbleached.

Mr. Butler: New and old flour.

The Witness: It was in October.

The Court: New or old flour.

The Witness: Taken directly from the mill, and from the wheat of that season.

By the Court:

Q. Wheat grown that season? A. Yes.

By Mr. Butler:

Q. New flour, made from new wheat, in October?

A. That was represented so, to us. Now, after digestion with two and one-half milligrams of pepsin, in five hundred cubic centimeters, an amount was rendered soluble that was equal to .716, practically .72 of one per cent of the nitrogen of the flour. That is the total nitrogen, representing the 1.82 per cent of the flour, and this digested portion of .72 per cent of the flour, in the case of unbleached flour. In the case of the bleached flour, the results were .71 of one per cent. These results were well within experimental error.

By Mr. Butler:

Q. Do you mean .716 of one per cent?

A. That is the way the figures came out, practically seventy-two.

By Mr. Butler:

Q. That is what was rendered soluble?

A. In one of the duplicates on the unbleached.

By Mr. Butler:

Q. Well, now, so we won't make any mistake, you started out with 1.84 of nitrogen in the whole flour. That was the nitrogen content of the flour?

A. Calculated on the flour.

2154 By Mr. Butler:

Q. Called them both alike? A. Yes.

By Mr. Butler:

Q. Now, you have not told us, yet, how much nitrite was in either. A. I do not know.

By Mr. Butler:

Q. You do not know how much? A. No.

By Mr. Elliott:

Q. You did not make the nitrite determinations?

A. I did not make the nitrite determinations on these samples.

By Mr. Butler:

Q. Well, you say in this peptic solution, there was digested .72 of one per cent of the flour? A. Of nitrogen.

By Mr. Butler:

Q. Well, you said of the flour.

A. The nitrogen in the digestion portion was .72 of one per cent of the flour.

By Mr. Butler:

Q. And the nitrogen was .72 of the flour, or .72 of one per cent of the flour, that was digested, and did not digest?

A. That was digested. The amount digested had .72 of one per cent. Now, with the bleached flour, the amount in the digested portion, the nitrogen in the digested portion was .71 of one per cent of the flour. That is, the results were within the limits of experimental error, in the determinations of nitrogen.

By Mr. Elliott:

Q. And there was no difference, then, between the digestibility of the bleached and unbleached flours?

A. No difference in the rate.

Q. In the rate of digestion? A. No.

Q. Now, that was with what? A. That was with pepsin.

Q. Now, give us one with pancreatin, if that is the next one. I do not care which substance you use.

2155 A. With one milligram of pancreatin, there was, of unbleached, .41 of one per cent of nitrogen, calculated upon the flour in the digested portion, and, in the bleached flour, there was .42 of one per cent of the nitrogen calculated on the flour in the digested portion, the results being within the experimental error on the determination of nitrogen.

Q. That is, no difference in digestion?

A. No difference.

Q. Now, with the other digestion fluids.

By Mr. Butler:

Q. On the same samples?

A. On the same samples, yes, sir.

By Mr. Butler:

Q. Well, you say the same samples. This was the same mill?

A. Yes. These same two flours. The method of procedure there was to submit that to the action of diastase and, in the first one that I have here, there was .2 of a gramme of diastase, and .1 of a gramme of the flour, with one hundred cubic centimeters of the solution. Now, the method in this case is to test, from time to time that liquid, for starch, and observe at what time the reaction with iodine disappears. Now, this is a point which cannot be determined with absolute exactness, by many other tests, and it was not possible to notice any difference in the strength of the reaction, or in the time when the reaction for starch, or any action at all with iodine, disappeared in the two samples.

By Mr. Elliott:

Q. So, what did you conclude as the result of that experiment? A. I concluded that there was no difference.

Q. In the rate of digestion of the starch?

A. Yes. The action of diastase upon starch, strictly speaking.

Q. Now, what is the other—the saliva?

A. The saliva was not tried on this particular sample.

Q. Now, have you made other digestion experiments on flour, that was bleached and unbleached?

A. None that you can trace in this way.

Q. Well, I just want to get at what you have actually done. I am not going to ask you about the experiments. Just tell me what was the nature of these experiments? How did you get the flour? Was it flour sent you in your official position, to test, or how did it come to you?

A. I sent my assistant to the mill to get it.

Q. And you have made more than one test on this particular flour, that your assistant got for you? A. Yes.

Q. More than one test has been made on that, by these digestion experiments? A. Yes.

Q. Now, you spoke of having made a great many digestion experiments—was it ninety-four?

A. More or less. That is the number that I made, in counting over.

Q. Upon what flour were they made?

A. They were made, part of them on this, and the others upon two other samples obtained at the same mill.

Q. Obtained at the same mill, by your assistant?

A. I know that the last one was not obtained by him. I have forgotten about the second.

Q. Now, as a result of your experiments as to digestibility, I will ask you if, in your opinion, bleached flour is injured in its digestibility, either as to the digestibility of its gluten or starch. A. In my opinion it is not.

Q. What is the gentleman's name that you said is your assistant? A. Mr. Utt.

Q. And you say he is present? A. He was. He is.

Cross-Examination

By Mr. Butler:

Q. I only want to interrogate you touching the very matters brought out by Mr. Elliott in the direct examination, and, as I understand it, you gave us the results of experiments on only flour. A. Yes, sir.

Q. And that was in October, 1908?

A. That is when the flour was milled, yes.

Q. 1908? A. Yes, sir.

2157 Q. And with respect to that flour, you never did find out, by hearsay or any other way, how much nitrite reacting material there was in it? A. No, sir.

Q. You did find out by hearsay, that one was bleached and one was not, because your assistant went down and got one before it went through, and the other after it went through?

A. Yes, sir.

Q. That was at the Manhattan mill? A. Yes, sir.

Q. Is it within your knowledge that that mill bleaches very lightly, and that its fresh bleached flour only gives about .15 of one part per million nitrous nitrogen?

A. The only figures that I have in mind are those that were objected to.

Q. Well, you do not know, then, of your own knowledge, whether they bleach heavily or lightly?

A. That flour was sent up from the mill.

Q. And you were told it was bleached, but you do not know how much stuff was added to it by the bleaching?

A. I should call it lightly.

- Q. Very lightly, wasn't it? A. Rather lightly.
- Q. Did you test it for bleaching, independently?
- A. I cannot say about this flour I am testifying of.
- Q. I am speaking only of this one particular sample. Did you drop some of the Griess reagent on this?
- A. I did not myself, I am sure.
- Q. There is no record made of how much it did contain, that you know of? A. I do not remember that determination.
- Q. You know that it was not quantitatively determined by anybody? A. I know that I did not.
- Q. You know that you did not do it? A. Yes.
- Q. Do I understand you are the first one who ever used this Griess test? A. As far as I know.
- Q. When was that? A. In March, 1908.
- Q. The Griess test was not known, for the purpose of testing bleached flour, before that?
- A. Not to my knowledge. I published it at that time.
- Q. Of course, the test, itself, for nitrites, was known?
- A. Oh, certainly. I had used it many years before.
- 2158 Q. So, until March, 1906, it was not known, and not employed so far as you ever heard of, for finding out whether flour contained nitrites, or nitrous acid, or nitrite reacting material? A. So far as I know it never had been used.
- Q. It is the only test known for nitrites at all, isn't it?
- A. There are other tests that are used.
- Q. I know, but this is practically the only one that is used?
- A. On flour, I think so.
- Q. On anything, wherever you want to find a nitrite, you get your Griess test, don't you?
- A. That is the most delicate test.
- Q. And the best one, most commonly used, isn't it?
- A. For minute quantities. Of course, in larger amounts, other tests are used.
- Y. Will it disclose the nitroso compounds in flour?
- A. I should expect it to.
- Q. The nitro bodies?
- A. Not unless some further change took place.
- Q. The xanthoproteic reaction? A. I do not know.
- Q. The amido compounds?
- A. Will the Griess test show that, you mean?
- Q. Yes. A. Not to my knowledge.
- Q. Amyl nitrite? A. I should expect it to.
- Q. Will it identify it, from any other nitrite?
- A. I should think not.
- Q. It will simply identify nitrites? Isn't that all?
- A. Yes.

Q. Whether nitroso compounds, or what particular nitrites they are it does not disclose, does it, directly? A. No, sir.

Q. All it discloses is that group? A. Yes.

Q. And, so far as the Griess test is concerned, you can have any number of nitrites in that group? Isn't that it?

A. Yes.

Q. Does it disclose whether flour has been bleached or not?

A. I think it does, practically.

Q. With practical certainty, don't you? A. I think so.

Q. How? By dropping a drop on it?

A. That can be used, although I have been in the habit of shaking it up with water.

2159

Q. Well, that is for quantitative, or qualitative?

A. Either one.

Q. Well, as a practical matter, it is true, isn't it, that, if you slick down a sample of flour, and drop some of this reagent on it, if it is bleached it will show a reaction, very marked degree, and if it is not bleached, it will either show none, or a very slight one? A. Yes, sir.

Q. That is true?

A. So far as my observation has gone.

Q. And your observation has been very much? You commenced studying this thing very early, didn't you?

A. I have not examined so very many samples, although I began early.

Q. And it is a matter of common knowledge, isn't it, among bakers, millers and chemists, so far as you know, this whole country over, that a good, practical way to ascertain whether flour is bleached with nitrogen peroxide gas is, to just slick it down, and drop a drop of the Griess reagent on it, and if it turns a good, fair color, it is, and you would know that it was bleached? A. If the atmosphere is pure.

Q. I mean, under ordinary circumstances, clean and wholesome surroundings. That is it, isn't it? A. Yes.

Q. And that would be so, even in this sample that you spoke of, that only had about one-fifth—between one-fifth and one quarter of nitrous nitrogen to a million? That would show a pretty good test, wouldn't it? A. Yes.

Q. Stronger than any of the other unbleached flours that you have ever observed?

A. I have never observed the test in an unbleached flour.

Q. In all your observations, you never got the reaction in an unbleached flour, did you? A. Never have.

Q. You have never heard of any four parts per million getting in, in two or three days, have you?

A. I cannot say whether I have read that or not.

Q. You have never observed anything of that kind?

A. I have not.

2160 By a Juror:

Q. Why does your State Board of Health require bleached flour to be branded as bleached flour?

A. I think, sir, that it is because they feel the public should be informed; that there are some who prefer unbleached flour, and that they ought to have the privilege of choice.

By Mr. Butler:

Q. You made these digestion experiments to which Mr. Elliott adverted in his direct examination, for the purpose of ascertaining the effect upon flour of bleaching?

A. That was the purpose.

Q. And you came to the conclusion, from the experiments that you did make, that digestibility in these tubes was not affected? A. Strictly, it would be the rate of digestion.

Q. You did not bring any to complete digestion? A. No.

Q. Now, let me ask you this, Professor. I do not know a thing about it, and haven't an impression. I have noticed, however, in many of these experiments for digestion, that have been reported at this trial, that they stop, after they have digested a half or one-third of the substance. Now, might it not well be true that some of the residue of the substance would not digest at all, or digest more slowly, in one specimen, than in the other. In other words, what I mean is this: we will take two masses, and illustrate them in like quantities of bleached and unbleached flour, or any other substance. I am trying to get at a general truth, here, and you test them, and, down to about the middle, we will say, they both go down alike.

A. Digest, you mean?

Q. Yes, they both digest the same. Now, what I am trying to get at is this: If you continue that on down, might you not find in the residue of this one, something that would not digest at all, or slower than in this? A. I think not.

Q. You think that, stopping half the way down, you would have a fair test? A. Yes, I do.

Q. Now, is it not customary, and indeed very desirable to use very much larger quantities of the fluid than you
2161 used, we will say, in the pepsin experiment? Shouldn't there be one hundred times as much used?

A. Of the material?

Q. Of the pepsin.

A. That would be a matter of opinion.

Q. Well, would this simply be a hydrochloric digestion you got there? A. No, sir.

Q. How much pepsin did you use?

A. I have forgotten which one I read. Two and one half milligrams.

Q. In the whole thing? A. Yes, sir.

Q. Now, here is a milligram here. There are nine milligrams of stuff in that whole thing there, in Exhibit 225. Isn't that an awfully small amount of pepsin to use?

A. Oh, it is, yes, sir. Pepsin is an exceedingly active substance.

Q. You had five hundred cubic centimeters of flour?

A. Of liquid.

Q. Don't you think it would be better to have two hundred times as much as you had in both?

A. That would be altogether too much to handle.

Q. Now, did you find that this flour that was bleached, was naturally aged,—this flour that you digested, one that was bleached, and one that was not bleached. Now, I am trying to find out from you whether the one that was bleached was aged the equivalent of natural aging, or about three months, or such a matter.

A. What do you mean by that?

Q. Don't you know? A. Pardon me.

Q. Don't you know? Don't you know what we mean by the phrase, generally? Of course, you could not know what I meant by it, but I mean, do you know what is meant by the phrase generally?

A. I have talked with millers a great deal about aging.

Q. You have used the phrase, yourself? A. "Aging"?

Q. Natural aging. A. Not in my testimony.

Q. Oh, no, but in your works. I have your bulletin here.

A. Yes.

Q. I was about to call your attention to it, if need be.

A. Yes. Well, by natural aging, I understand a change that takes place in the flour, in the course of time.

Q. A good change, isn't it, always?

A. Change for the better?

A. It is so regarded.

Q. Does it improve flour, its taste, its gluten, its value, its digestibility? That is the common understanding?

A. I cannot say as to all of that.

Q. Well, but you do know that is the common understanding of the farmers, millers, doctors and lawyers, and of everybody familiar with flour, do you not?

A. I know the general understanding is it improved the color, and the baking qualities.

Q. And the taste? A. I don't know as to that.

Q. Now, do you think that this artificial bleaching by the Alsop process is the equivalent of natural aging?

A. It cannot be the same thing, chemically.

Q. That is utterly impossible, isn't it?

A. That is my judgment.

Q. That is your understanding? A. Yes, sir.

Q. And, away back in 1906, in a bulletin of the Kansas State Board of Health, you were the author of a statement, something to that effect, weren't you?

A. I cannot say from memory.

Q. Well, I wanted to get the connection, because I do not want even to appear to be picking out something out of connection, and I could not read the whole bulletin. You said this: "Whatever may be said in favor of the improvement of flour by this means, it cannot be successfully maintained that the change which takes place is the same as that which takes place by natural aging." That was your opinion then?

A. I still think so.

Q. You said, "Natural aging does not produce the oxides of nitrogen, or the products of their action on the flour."

A. I still think so.

Court thereupon adjourned to ten o'clock a. m. Wednesday, June 29th, 1910.

2163

Morning Session.

Kansas City, Missouri, Wednesday, June 29, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Julius T. Willard, in continuation of his cross-examination, further testified as follows:

By Mr. Butler:

Q. Bleaching of flour increases the acidity, does it not, slightly.

A. I should expect so. I have made no analyses, sir.

Q. You have so reported, have you not? A. Yes.

Q. It does increase acidity?

A. All reasoning would lead one to say so.

Q. And you so believe? A. So believe.

Q. Well, I understood you to say that you believe that it does? A. I do believe that it does.

Q. And you also believe that the bleaching of flour by these oxides of nitrogen when they come into contact with the moisture in the flour produce nitrous acid and nitric acid in flour? A. At first, certainly.

Q. By my last question I of course meant that the bleaching gas, the oxides of nitrogen, on being brought into contact with the moisture content of the flour at first upon that contact being made the flour is in a state of agitation, the first chemical reaction would be nitrous acid and nitric acid in equal chemical parts, molecular parts? A. Yes, sir.

Q. And of course it is true, is it not, that nitric acid and nitrous however made, when in contact with flour will further act chemically in some form, I don't say in what form?

A. They probably would.

Q. Yes, and nitrous acid acting chemically upon various bases would form nitrites, that would be the chemical
2164 action? A. Acting, if it acted upon bases, yes, sir.

Q. And it would either act or remain free, it would have to do one thing or the other, if it did not act chemically it would remain free? A. It would act on bases, however.

Q. Oh, it might act on something else, I would not know about that? A. Yes, sir.

Q. For instance.

A. It might act on amino-compounds, of course there are some like bases.

Q. I would not understand the chemical difference there, but my understanding goes to about this extent, when a certain acid does act on a base it forms a salt, and that salt is called a nitrate? A. Yes, sir.

Q. And when nitric acid acts chemically on a base it forms nitrates? A. It forms a nitrate.

Q. Yes, and if there are different bases there would be different nitrates? A. Yes, sir.

Q. And under the law of mass action neither one of these acids coming into contact with several bases differing in volume, quantity, each base from the other, and also perhaps in chemical affinity existing between it and the acid in question, there would be formed by the nitrous acid various nitrites, depending upon the character of the bases, the amount of the bases and the strength of chemical affinity?

A. Yes, sir.

Q. And that is that law if mass action would also apply to the nitric acid coming into contact with the various bases would apply? A. Yes, sir.

Q. Chemistry is—ought to be an exact science, is it not?

A. Chemistry ought to be an exact science.

Q. I will just stop there. A. Parts of it are exact.

By the Court:

Q. What?

A. Parts of it are exact, it is among the most exact sciences.

By the Court:

Q. Sir? A. It is among the more exact sciences.

2165 By Mr. Butler:

Q. Well, I don't mean by that that all the chemical knowledge in the world is definitely understood by chemists

or all chemists or by the people, but what I do mean by that is this, that it falls in the group of exact sciences, like mathematics; it is comparable to mathematics, not the same, but like it?

A. The nearer it approaches perfection the nearer it is mathematically exact.

Q. So that chemists may know after they have acquired familiarity with the well established laws of chemistry, what may happen in a given situation, that is, what may happen chemically? A. Yes, sir.

Q. As, for example, a chemist knows just as certainly as it is known that two plus two will make four, what NO_2 gas brought into contact with water will produce in molecular parts nitrous acid and nitric acid?

A. I do not think that we can say that we know that in a chemical sense.

Q. Well, I mean when nothing is involved except the water and the gas?

A. It produces an acid mixture which will form nitrites in that proportion, but nitrous acid itself is so little understood—

Q. Nitrous acid itself is so little understood that—I don't care to interrupt?

A. I would not feel like asserting positively just what but it without interference will produce nitrite and nitrate in equal molecular proportions.

Q. Well, that is what I mean. Now, of course some of the ways of getting to the result may be more or less obscure, but the result in nitrites and nitrates are known with certainty?

A. Yes, sir.

Q. Positive certainty, just as through addition of parts of a whole made the whole, isn't that true Professor?

A. Yes, sir.

Q. And, by the way, this is one of the simplest and best understood operations, isn't it?

A. You mean this particular re-action?

Q. No, I mean the treating of a base with an acid like nitric acid? A. Yes, sir.

Q. To produce nitrates? A. Yes, sir.

Q. Perfectly plain, is it not, that if there is affinity between nitric acid and a base, metal, we'll say, like iron, that nitrates of iron will come?

2166 A. Base of iron and nitric acid.

Q. Yes, a nitrate of some kind?

A. Nitrate would be produced, yes, sir.

Q. And in like manner this substance called nitrous acid, though it has never been isolated, as I understand.

A. I think not.

Q. Will upon combination with the base, form in anything that it will combine with, will form nitrate?

A. Yes, sir.

Q. And there is a great multitude of nitrates known, both organic and inorganic? A. A great many.

Q. A great many, I don't mean in number, and then there are nitroso compounds produced in organic substances by nitrous acid, perhaps?

A. I would not like to answer positively on that—nitroso compounds.

Q. There are nitro compounds produced by the other acid—nitric acid A. Yes, sir.

Q. That is certain, isn't it?

A. To the best of my knowledge.

Q. And then there is also known the yellow re-action called the—on proteids resulting from nitric acid, called the xantho proteic reaction? A. There is.

Q. That is well known, is it not? A. Yes, sir.

Q. And it is certain to take place, is it not, from treating the proteids with nitric acid?

A. I couldn't say as to the conditions essential for the production of that base.

Q. Well, if you pour nitric acid on flour you get the xantho proteic reaction; I don't know whether your attention has been called to this Exhibit 47? A. It has not.

Q. I think that is flour with nitric acid poured on?

A. You can get it under proper conditions unquestionably.

Q. That is what I mean, and all my questions, Professor Willard, involve proper or appropriate conditions with the details and the conditions, I could not—

A. I understood you to ask if it always took place.

Q. Well, I mean always under appropriate conditions, of course, and as to the conditions I would not be able to state them or go into that, because that would involve a very technical—a great deal of technical learning, perhaps. Now, 2167 let us assume that if you pour nitric acid upon flour that the xantho proteic re-action will take place, for example, that would be a reasonable assumption, would it not?

A. If it were concentrated nitric acid.

Q. That is what I mean, just take the nitric acid of commerce and pour it on some flour in a beaker?

A. I should expect to get the reaction.

Q. Now, for example, this would impress you, would it not, this specimen I just show you in Exhibit 46 is a very relatively very large amount of nitric acid? A. Yes, sir.

Q. But you would expect the re-action of the same character, but not of the same degree with a lesser amount of the acid, would you not?

A. I think not, necessarily.

Q. Well, I know—

A. Concentration makes much difference.

Q. Well, I say, but the lesser amount of the same acid would not be the same?

A. I don't think we could reason to that extent, to that point.

Q. Well, in all cases?

A. You could in some cases, possibly.

Q. Well, certainly, couldn't you, a grain of strychnine kills a gopher,—used to poison gophers with strychnine in our country—would it be pretty safe to think that half a grain would make them sick? A. Yes.

Q. And that a quarter of a grain wouldn't be good for his health, do you think that, wouldn't you?

A. We could probably say that.

Q. And, generally speaking, one would argue in that line, would he not, I am now speaking of things relatively gross?

A. Speaking of things relatively gross I think you could say that.

Q. Things may become so minute that we don't know what happens? A. Yes, sir.

Q. For instance, I might take some offensive substance like whiskey in so minute—

Judge Scarritt: You don't call that offensive?

Mr. Butler: To some, very.

Q. In so minute a quantity that no observable effects would be noticed, couldn't I? A. Yes, sir.

2168 Q. Now, of course it is generally known, I understand that a large amount would make one drunk?

A. I have been so informed.

Q. Now, a small amount, a small amount—

The Court: He says he has been so informed.

Q. Would probably have a tendency in the same direction?

A. Is somewhat similar, yes, speaking of relatively gross amounts.

Q. Would have a tendency in that direction?

A. Yes, sir.

Q. And, so, generally speaking, we live our lives, we find a substance like nitric acid, it is a poison by nature to take, we'll say, internally, I think most of men agree to that, wouldn't you?

A. In any concentrated form it certainly would be.

Q. Then if we have enough it would kill, half enough would make you sick, a quarter as much would not be very good for us, isn't that true? A. Yes, sir.

Q. And so on as far as we could reason?

A. I don't think we are able to say that.

Q. No, but you can't say to the contrary because it gets so minute that you cannot observe the effects?

Mr. Elliott: Your Honor, I object to this line of examination; this gentleman is not qualified as a toxicologist.

The Court: Yes, I think that is so, I was thinking about that; this gentleman does not testify as a toxicologist.

Mr. Butler: No, I really inadvertently got into this subject, Professor Willard, on account of this law of mass action.

The Court: Objection is sustained.

Redirect Examination

By Mr. Elliott:

Q. You spoke something about amino-compounds. Are there amino-compounds in foods, Professor Willard?

A. There are.

Q. What kind of foods?

A. They are found in meat; they are found in what we commonly call vegetables, potatoes, turnips, cabbage, beets, asparagus; they are found in relatively small amounts in grains, that is the seeds; they are found most in the vegetation, what are called the vegetation portions of plants, that is the growing parts.

Q. Now, what is the effect of these compounds on nitrous acid?

A. Nitrous acid and amino-compounds interact, a change taking place in both, in which the nitrogen and the amino-compound or the amino group of the compound and in the nitrogen of the nitrous acid are given off in a free state, and in that case the amino group of the amino compound is replaced by the hydroxyl group; that is NH_2 is replaced by OH .

Q. Can you tell us what else is given off besides free nitrogen? A. Water would be.

Q. Carbonic acid gas?

A. That would depend upon the nature of the amino-compound with urea, as I stated yesterday, carbonic acid gas would be produced, but with the amino-compounds of food you would have a more complex carbon content.

Q. Now, is urea one of these amino-compounds? A. It is.

Q. I want to ask you, Professor, if you made—dealing with that first sample of flour you testified to yesterday, did you make the determination of nitrogen of the flour of the bleached and unbleached? A. We made that.

Q. Was the nitrogen content the same?

A. It was the same.

Q. Did that to you as a scientist indicate that the flours were of the same quality, so far as the proteids content was concerned, or the nitrogen content, did that indicate that they were the same flours, to your mind?

A. It would be evidence as far as it goes.

Q. And you were dealing in that with the disappearance of nitrogen by digestion, were you not?

A. Not the disappearance, but the making of saliva and nitrogen compounds.

Q. So that, as a matter of fact, you did start with two flours, enough within the limits of air, the same amount of nitrogen? A. With three flours.

Q. With three flours, I should say. I will ask you if you have ever made any experiments in this line of exposing flour to air to ascertain if flour is bleached and acquires any of this nitrite reacting material?

Mr. Butler: I think the experimentation would not be re-direct examination.

The Court: Well, he may answer. Go on, please.

A. I have not.

Q. You were asked something about your view, as you
2170 understood it, as to whether there was an increase in the acidity of flour. Did I understand you to correctly state that you have made no analyses to determine that point?

A. We have made analyses, but I am not in a position to testify on the figure.

Q. You yourself made no analyses personally?

A. They made them in the department, I haven't that many hands, no, but—

Q. Now, while it is true, as you have stated, that the laws of chemistry are certain, I want to ask you if it is not also true, Professor Willard, that in the realm of chemistry new compounds, new substances, and perhaps new laws, are constantly or at least frequently being discovered and with some degree of frequency old theories are discarded, isn't that true?

Mr. Butler: I object to that as irrelevant, and immaterial.

The Court: He may answer.

A. It is true.

The Court: I want to say this, I have been ruling, it has been an inexact science; if I am not mistaken some of my rulings with reference to these books will be wrong. That is the argument of Judge Thayer in the case of the Union Pacific Railroad against Gates, which was based upon the theory that medicine and the practice thereof was not an exact science; hence it was that the Court of Appeals held that the admission

of Erickson on concussion of the spine was not admissible. Now, scientific books with reference to an exact science would perhaps be admissible. I mention that now for both sides to consider. Works in algebra and calculus, something that the ordinary judge or jury would not know about, would perhaps be admissible,—the solution of a problem in algebra, calculus or geometry. Well, go on.

By Mr. Elliott, resuming:

Q. Now, I have understood you to state in answer to Mr. Butler's question that this xantho proteic re-action produces a yellow compound? A. Yes, sir, yellow color, at least.

2171 Q. A yellow color, I should say, and have you any knowledge as to whether that requires a highly concentrated form of nitrous acid to produce it?

A. My experience has been that it must be fairly concentrated.

Q. Now, suppose some gentleman had testified that he had sprinkled dilute nitric acid on some flour, and he brought it in here and swore that that flour was bleached, that is made whiter. What would you say as to whether or not a xantho proteic re-action had been produced?

Mr. Butler: I object to that as irrelevant and immaterial. I have a great confidence in Professor Willard and would be almost willing to have him serve on the jury, but I would not like to have him pass on the testimony—credibility of witnesses.

The Court: You cannot ask as to whether another witness is credible or not, and that is the effect of this; you may ask him what the result would be.

Q. Well, assuming that dilute nitric acid if sprayed on flour bleaches it; in your judgment would that—by bleaching I mean makes it whiter—in your judgment what would that indicate to you as to the formation of a xantho proteic re-action? A. It would not indicate anything to me.

Q. Would not indicate anything?

A. That is, I would not know.

By the Court:

Q. You say you would not know?

A. I would not know what the effect would be.

The Court: Well, that disposes of that; he said he don't know.

Mr. Elliott: I believe that is all I have to ask, Mr. Willard.

Recross Examination

By Mr. Butler:

Q. Suppose that the coloring matter natural to flour, the color described as white, but being in fact a creamy yellow, that is the fact, is it not, a creamy white to yellow?

A. I should say so.

Q. Suppose it be the fact that that color in flour be made up of two primary colors of the prism, yellow and orange; that the yellow is .13, as against the orange .15, and that is the natural color; now, yellow, the primary color, yellow is a stronger color, is it not, that is, it is the most prominent color—

The Court: Stronger than orange, he means.

By Mr. Butler:

Q. Orange as against lemon?

A. That is, of course it depends on the intensity of the tint of yellow.

The Court: He gives those per cents.

A. Oh, I beg pardon.

Q. I mean 13 to 15, call them equal, call them equal in per cents, the yellow would be the stronger, would it not; for instance, there are seven colors, violet, indigo, blue, green, yellow, orange and red.

Mr. Elliott: I object to this as not proper recross-examination.

The Court: He may answer.

To which ruling claimant then and there duly excepted.

Q. That is true, is it not, the orange would be, in your judgment, the stronger?

A. I must beg pardon because I didn't know what you were getting at, and I have to hear the first part of the question again.

Q. Well, let me—I will form another question so as to direct your mind if I can to what I am at. The creamy color observed in natural flour is not in one of the primary colors alone, in one of the seven primary colors that we have used, the primary colors, as the seven colors of the rainbow, but is made up of yellow and orange in the relation of 13 yellow to 15 orange. Now, assume that to be the fact, now, assume further to be the fact that as you—well, first these colors are vegetable colors, are they not.

Same objection by claimant.

The Court: He may answer.

Q. Natural, harmless, vegetable colors?

A. As far as I know they are.

Q. Generally so understood; color in flour, that is what I mean, in the flour, the natural color in flour. Now, then, assume that with certain treatment by these gases the
2173 orange descends to zero, the yellow observable, whether natural or artificial we can't tell, will descend by like treatment to six; further treatment continues, the orange at zero, at zero, at zero, no matter how much you give it, but a little more of the treatment then brought the yellow to six, increases it to eight, and increases it to twelve, to thirteen, and so on, until it becomes a strong yellow, stronger than the yellow that you started with.

The Court: Stronger than 13?

Q. Stronger than 13, but the orange is all zero, would you not say, assuming what I have told you to be the truth, to be the fact, that the bleaching is adding yellow to the flour?

A. I think it would be, assuming that to be true.

Q. Yes, sir, if that were not true the yellow would never increase, would it; I say the yellow would never increase with increased application of the bleaching medium unless the bleaching medium was making it? A. No.

Q. Now, then, let us assume that the natural yellow is an innocent harmless, vegetable yellow. Slight bleaching reduces that a little but never obliterates it. Is that not wholly consistent with—I don't say it is dye proof, but is it not wholly consistent with the theory that the first attempt of bleaching, it is the unnatural yellow, the wicked yellow of the bleaching, and continue to add it as you continue to bleach, destroying totally the original natural yellow, but when that is destroyed you have the six of the wicked yellow of nitric acid?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial and a mere argumentation not based on any evidence in the case.

The Court: He may answer it.

To which ruling of the court claimant then and there duly excepted.

The Witness: I beg pardon, I hardly know exactly what the question is now.

2174 Judge Scarritt: I don't see how he could.

The Court: It is as plain as A B C to me, but I have been following the question.

Q. Well, what I am getting at, you see what I am getting at here, if you bleach the orange readily descends all the time down to zero? A. I understand.

Q. But your yellow—you started out with an innocent yellow. Now, my theory is that you put in a wicked yellow from the time you start, all the time, you descend a little ways, but you get out all your innocent yellow and continue to put in the wicked yellow which is the evidence of the nitric acid upon the protein right straight along; now, aren't the facts which I have stated to you perfectly consistent with that theory or claim of mine?

Same objection by claimant.

The Court: He may answer.

[Q.] Now, if I remember your statement, I think they are consistent.

Q. You think they are?

A. That is, that the original color might be destroyed?

Q. Yes.

A. And from the very first, coincidentally, a new color substance might be produced; now, if that is the question, I believe it is possible; I don't say it is.

Q. Now, nitric acid, though, we do know, will make yellow, increasing in intensity, in sufficient dilution it will make a yellow and increase in intensity as the acid is increased?

A. I am not able to say; my observations have been with the stronger acids.

Q. Now, the water content, let us take this other example. Here is, we'll call that circle one of the dust particles of flour—do you understand what I mean?

A. One of the finest particles of flour.

Q. One of the fine particles. I make it large there so we can get at it. Now, in the flour there is about ten or fifteen per cent water, isn't there, of the total flour weight, rather?

A. Yes between that—it should not be—

By the Court:

Q. How much do you say twelve, ten, along there?

2175 A. About twelve per cent.

Q. About twenty pounds or twenty-five pounds in a barrel of flour. Now, that water is distributed, is it not, all through that flour, and as a very thin film over the dust particles of the flour?

A. All through the particles.

Q. Yes, and all through them. Now, we are dealing with very minute things, now? A. Yes, sir.

Q. Now, does not the degree of concentration of nitric acid which NO₂ will produce in that moisture depend, I wont say

definitely upon what, but in some manner upon the method of distribution of the water content? Do you get my point? The method of distribution of the water, or the manner that the water is found or distributed through the flour?

A. The concentration at first would.

Q. Yes, that is what I mean, and if in very thin film, microscopically so, if that is possible, the concentration would be greater than if it were in a bucket, in a large mass?

Counsel for claimant objected to the question as not being based on any evidence.

Q. The same amount of NO₂ being used.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. Well, that is—that last statement is not in harmony with what I understood the previous question to be, that is, the attorney spoke of the distribution of the water.

Q. Yes.

A. Now, if the water is distributed through that dust particle, that may be a very small particle but as compared with molecules it is very large, and the water molecules, I would say, are through that particle, they are on the surface and they are through that small particle, and these oxides of nitrogen would first come in contact with the surface, and hence this film on the surface would be a more concentrated solution [that] if it were at once mixed with the total amount of water in the particle, but that is quite different from speaking of the volume of water
2176 and a bucket of water.

Q. Well, I was trying to get at what you said; I was trying to say what you did, but I didn't know how, what you just said, but I didn't know how, that is all. Now, so then concentration and dilution would be a factor in the production of this yellow re-action, no doubt?

A. Certainly.

Q. With length of exposure, length of time?

A. I think so.

Q. So, time and concentration? A. Yes, sir.

Q. Well, now, we'll drop it. Mr. Elliott brought out the fact that the amino compounds are found in flour, did he—my attention was given to something else just then—in many places, including flour? A. Yes.

Q. That is right, isn't it? A. Yes.

Q. Now, there are various groups of these amino compounds, are there not? A. Yes, sir.

Q. There is the primary amino compounds, so called, and the secondary, so-called?

A. Primary amins and secondary amins.

Q. Yes, primary amins and secondary amins. Now, nitric acid acts on the primary amins and forms what is called hydroxy compound, or may do so? A. Yes, sir, it may do so.

Q. And upon the secondary amins, and give the nitroso compounds?

A. I have not reviewed that for some time, and I would not like to swear to it.

Q. You would not be willing to swear that it was or was not so? A. Not today.

Q. Very good. Now, the proteids of flour contain these amino groups; are they the proteids or in the proteids or of them? A. The proteids yield them.

Q. Yes, affects food value?

A. It does affect food values.

Q. Yes, sir, their presence or absence?

A. To an extent, yes, sir.

Q. And nitrous acid being brought into contact with these amino groups, the primary—I confine you to that because you are not willing, as I understand, today, to talk about the other—the nitrous acid changes, and the constituents of the flour, to-wit, this amin, primary amin group, changes?

A. I would not say that it does of the protein, if that is what you mean by your question.

Q. Well.

A. I stated that the protein substances would yield amino compounds and keep on yielding, but that they actually contained the amino group previous to splitting up I would not be able to say.

Q. Oh, I see. Then, as I get your meaning, the amino group may not exist until the proteids split up and produce them?

A. The flour would contain amino substances that are not proteids.

Q. I see. Now, what I am getting at, whatever it is, the nitrous acid comes there, going to be a change, the acid is changed and the flour constituent is changed? A. Yes, sir.

Q. Now, so as not to confuse ourselves with hard names, then the situation is this, there is in the flour and in the grain certain substances of value called amins, nitrous acid will affect it, and it will affect nitrous acid?

A. I would say amino compounds. I would not say amin.

Q. All right, amino compounds. I don't know the difference. A. Amino compounds or amido compounds.

Q. And the nitrous acid will break them up and make something else out of them? A. They interact, yes, sir.

Q. Something else is the result when the nitrous acid comes in? A. Yes, sir.

Q. Is that same true with nitric acid?

A. It does not have the same effect.

Q. No, but is there a similar effect, a breaking up of some part of the flour by nitric acid, or do you know about that?

A. Not with these amino groups.

Q. It would not be with the protein if in concentration, that we have been talking about? A. Yes.

Q. So it follows, does it not, as night follows the day, that nitrous acid is not normal to bleached flour, is it?

A. I have made no investigation of that excepting that I have not detected—

2178 Q. Never heard that it was?

A. I have not detected it in flour.

Q. So then the truth is the application of nitrous acid to flour changes the flour and the flour changes the nitrous acid?

A. Yes, sir.

Q. Changes the substances of it? A. Yes, sir.

Q. Changes the nature of the substance of it?

A. To an extent.

Q. And neither betters it or injures it as food?

A. Yes, sir.

Q. Now, which do you think it is?

A. It might better it in one respect, and injure it in another?

Q. Yes, sir, so that the result of all this, this NO₂ getting into contact with the water and producing the acids, and the acids work upon the flour, and they change the flour, that is the truth about the matter, isn't it, and they change the flour?

A. They change the flour.

Q. That is the truth about it, the degree of change will depend upon the quantity used? A. Probably.

C. A. A. Utt, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

By the Court:

Q. Where do you live? A. Manhattan.

Mr. Butler: I waive the supplying of the proof with respect to the samples that Professor Willard digested.

The Court: Then that is all.

Mr. Elliott: There was some other flour.

Mr. Butler: Then I withdraw my waiver, if we have to examine him.

Judge Scarritt: Let the waiver stand as to that, and save time.

2179 Mr. Butler: No, if we are going to examine him, we will have it all out.

By Mr. Elliott:

Q. What flours did you produce for Professor Willard, did you procure, and where?

A. In October, 1908, I secured a sample from the Manhattan Milling Company, and in March of this year, 1910, I arranged for getting another sample.

Q. Now, what do you mean by "arrange for getting another sample"?

A. I went down to see the miller regarding it, the Manhattan Milling Company, and the miller being absent at the time I arranged to have it sent up.

Q. And was it sent up? A. It was sent up.

Mr. Butler: That is objected to as irrelevant.

The Court: Well, it may stand.

Cross-examination declined.

Robert R. Clark, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Judge Scarritt:

Q. Your name is Robert R. Clark? A. Yes, sir.

Q. You live in St. Joseph, Missouri? A. Yes, sir.

Q. Manager of the Davis Milling Company of that place?

A. Yes, sir.

Q. How long have you been manager of that mill?

A. Six years.

Q. What is its capacity? A. Seven hundred barrels.

Q. Seven hundred barrels per day?

A. For twenty-four hours.

Q. Do you use the Alsop bleacher? A. Yes, sir.

Q. How long have you used it? A. Four years.

2180 Q. Four years. Did you make any tests of the bleacher before you put it in your mill under a guarantee from the Alsop Company, before you accepted it?

Mr. Butler: I object to that as irrelevant and immaterial whether it was under a guarantee before he accepted it, or not.

The Court: Yes, he may testify to his tests.

Mr. Butler: No objection if he made some tests.

Judge Scarritt: What I want to show, the reason he made the test—

The Court: He made the test, now, what of it?

Judge Scarritt: I will just state what I want to show, if your Honor please, and I desire to offer to show that this gentleman took the process on a guarantee and that—

The Court: Now, then, you follow up whether there has been a breach of the guarantee or not.

Judge Scarritt: No, the question was—

The Court: I would rather hear the evidence than hear the argument, go on; I cannot for the life of me see what the controversy between the Alsop Company and some miller has got to do with it, but go on, if you want to, air it; go on.

Judge Scarritt: I want to show it, and I object and except to the remarks of the court.

The Court: The point I make is, I see no relevancy, but let's save time and go on.

By Judge Scarritt:

Q. You did buy it on the test guaranty?

Counsel for libelant objected to the question as leading and immaterial.

The Court: Go on.

Judge Scarritt: I withdraw it.

Q. Now, tell what your tests were?

A. The test I made was for shrinkage in weight by the use of this Alsop process.

Q. Speak so the jury can hear you, Mr. Clark.

A. The method of making that test, we went into it very carefully.

2181 Mr. Butler: I move to strike that out.

The Court: That is stricken out, no answer to the question.

A. The test showed—

Mr. Butler: I object to that.

Q. Just state what you did, Mr. Clark, and what the results were. A. Well.

Q. You took how many sacks of flour?

Mr. Butler: I object to that as leading.

Judge Scarritt: I am trying to start him off right.

A. We took twenty-five hundred and forty pound jute sacks of flour and emptied them or dumped them, passed them up an elevator leg through this agitator.

Q. Bleached or unbleached flour when this started?

A. Unbleached when it started through this agitator in which this Alsop gas was introduced; the flour was passed down through another leg of the elevator and weighed off, we weighed the sacks from which we took the flour; we put it into new jute sacks and weighed them; it showed a loss of 37 pounds.

By the Court:

Q. Out of 2500?

A. Out of 25 one hundred and forty pound sacks—about 3500 pounds.

By Judge Scarritt:

Q. About 3500 [hundred] pounds?

A. About 3500 pounds.

By the Court:

Q. I misunderstood, how many pounds were there when you started in?

A. There were 25 one hundred and forty pounds jute sacks.

By Mr. Butler:

Q. How many pounds of flour was there? A. 3500.

Q. Even up to an ounce?

A. I don't say we weighed that flour.

Q. What did it weigh, that is what we have been trying to get at?

Judge Scarritt: Are you examining now?

The Court: I started to ask a question. I do not yet understand how many pounds of flour there were, to start with.

Judge Scarritt: I will get at it.

2182 By Judge Scarritt:

Q. How many sacks of unbleached flour did you use?

A. 35.

Q. 35? A. 35.

Q. What did each sack of flour weigh? A. 25, 25.

By the Court:

Q. Now, there were—I got to make the computation again, which was it? A. 25.

By the Court:

Q. I have to multiply again, now; are you certain it is 25?

A. Yes, sir.

By Judge Scarritt:

Q. You took 25; now, how much did each sack weigh?

A. A hundred and forty pounds.

By the Court:

Q. Sack and all? A. Sack and all.

By the Court:

Q. There you are again, now, that is 3500 pounds; now, how much did the sacks weigh?

Judge Scarritt: He said sack and all, if Your Honor please.

The Court: I know he did; how much did the sacks weigh, they did not bleach the sacks, did they? How much did the sacks weigh?

A. Judge, we weighed the sacks all in a lump after we emptied them.

Q. How much did they weigh?

A. They weighed not quite a pound apiece.

By Mr. Butler:

Q. Well, how much did they weigh?

Judge Scarritt: That is mere quibble.

The Court: Go on.

A. We made the same—

Q. Wait a minute, let's get this straightened out, with all this confusion, half a dozen examining you, no wonder you get confused. You took this 25 sacks of hundred and forty pounds each and passed them [though] the agitator, as I understand? A. Yes, sir.

Q. Now, did you weigh them after they passed through the agitator and after they were bleached? A. Yes, sir.

Q. What was the difference in the weight, did you weigh them in the sacks and all, just the same as you did before.

Mr. Butler: I object to that. I want the weight before and after.

The Court: He may answer.

A. We weighed the sacks before and after, and in that way—

By Judge Scarritt:

Q. What was the difference in the weight of the flour by a reduction of the moisture in the flour in putting it through this machine?

Mr. Butler: Who said it was a reduction of the moisture? We object to that as assuming something.

Q. Well, is was the same flour, wasn't it?

The Court: You may tell what the flour weighed.

Q. What did it weigh afterwards, tell the jury that.

A. The shrinkage was thirty-seven pounds; that is what I was after; I was after the shrinkage; that is what I was interested in.

Mr. Butler: I move to strike out what he was after.

The Court: It may stand.

By Judge Scarritt:

Q. Now, what other test did you make?

A. We weighed the same flour, that is, the same flour made at the same time, and we passed it up through the agitator in the same manner without the gas.

Q. Without bleaching it?

A. Without bleaching it, and we found a loss of eleven pounds.

Q. Eleven pounds? A. Yes, sir.

Q. There was a loss in the bleaching of flour of thirty-seven pounds in the 3500 pounds and a loss of eleven pounds in the unbleached flour going through the same mill in 3500 pounds? A. Yes, sir.

Q. Did you make any other test?

A. Made a further test by taking this first 25 sacks that we bleached.

Q. And after they were bleached?

A. After they were bleached we passed them up through the agitator.

Q. Without rebleaching?

A. Without rebleaching, and found a loss of seven pounds.

Q. Of seven pounds? A. Yes, sir.

By the Court:

Q. That is simply subjecting it to the air, you say?

2184 A. No gas.

Q. You passed it through the agitator without any gas?

A. Without any gas.

Q. But there was air?

A. Of course there was air in the agitator.

Q. Was the agitator in motion? A. Yes, sir.

By Judge Scarritt: (resuming.)

Q. Just one further question, in the ordinary milling process—

By the Court:

Q. Were these paddles on, or whatever you call them, inside of the agitator, revolving?

A. The real paddles, yes.

By Judge Scarritt:

Q. But there was no gas introduced?

A. No gas introduced.

Q. Now, in your experience—you have used unbleached flour also as well as bleached flour haven't you? A. Yes, sir.

Q. Your experience in the use of bleached flour and unbleached flour, what, in your opinion, is the relative difference between them as to bread making qualities.

A. The bleached flour is better.

Q. Do you remember making flour, it changes the color, the bleaching does, which has been so often testified here; is that your experience? A. Yes, sir.

Q. Makes it whiter? A. Yes, sir.

Q. In your experience, how is the bread made from bleached flour as to its quality and strength and volume, as compared to the bread made from the unbleached flour of the same kind?

A. Better.

Mr. Butler: I move to strike that out as giving his conclusion.

The Court: It may stand, although he testifies as an expert miller, but it may stand, I have not heard any qualifications.

Judge Scarritt: He has been a miller for years, and there is no use to go into all that unless Your Honor wants it; I am trying to save as much time as I can.

2185 Q. The electrifier in your mill is attached to the agitator by pipes the same as has been explained here before?

A. Yes, sir.

Q. How far is your agitator from your electrifier or how long are the pipes between the electrifier and the agitator?

A. About forty or fifty feet.

Q. Have you had to replace any of your pipes in your mill by reason of being rusted out or worn out since the process was put in there?

A. Well you mean these pipes for this agitator, or the steam or water pipes?

By the Court:

Q. The pipes from the electrifier to the agitator?

A. No, sir.

By Judge Scarritt:

Q. Not at all? A. No, sir.

Q. Is Mr. Bullock in your employ?

A. No, sir, Mr. Dolan.

Q. And these pipes have been in there for how long?

A. Four years.

Q. That is all, Mr. Clark.

Cross-Examination

By Mr. Butler:

Q. Did you do this work of weighing, yourself?

A. I superintended it.

Q. Did you mark down the weight of the flour before you put it through to bleach it?

A. I say I superintended it, Mr. Dolan done the actual weighing.

Q. Was it marked down?

A. It was at that time, yes, sir.

Q. Have the figures been preserved? A. No, sir.

Q. You are speaking from memory?

A. I am speaking from memory.

Q. You don't mean to say that a hundred and forty sacks of flour will weigh exactly 3500 pounds?

The Court: Twenty-five sacks, you mean.

A. The sacks were taken right from the—

By Mr. Butler:

Q. I am not asking you where they were taken from; I am asking you what it would weigh, the flour.

A. Yes, sir.

Q. Exactly to a hair.

A. Because they were just weighed as they came from the mill and marked down there.

Q. How much did the empty sacks weigh, twenty-five empty sacks, what did they weigh?

A. I say I did not preserve those figures.

Q. You don't know?

A. I was after the exact shrinkage, that is all I cared about.

Mr. Butler: I move to strike it out.

The Court: That is stricken out, not an answer.

Q. Your finding is, then, that you lost more than one per cent? A. A trifle more.

Q. If you used the gas? A. Yes, sir.

Q. And less than half of one per cent when you did not?

A. Yes, sir.

Q. Your conclusion is then that the gas does something to the flour, isn't it? A. Dries it out.

Mr. Butler: I move to strike that out. I did not ask him what it did.

Judge Scarritt: I object to his striking that out.

The Court: Yes, that may stand.

Q. All right. Now, you wanted to find out what effect that gas would have on the flour; did you say that was what you were after?

A. I wanted to find out what the shrinkage and loss was, wanted to figure it.

Q. When you were putting the gas in you blew air in, didn't you? A. I don't know as you call it blown.

Q. You had a pump for pumping air in? A. Steam, yes.

Q. If you were not bleaching you did not pump air in, isn't that true? A. Yes.

Q. Now, if you wanted to find out what the gas would do why didn't you pump air both times, once with the gas in it and once without the gas in it?

A. Well, I wanted to find out what the shrinkage was by using this process; it cost money to shrink flour.

Q. You were afraid you would lose money by it?

A. Of course.

2187 Q. That is four years ago. Didn't tell you at that time that it would double the proteids, just as it stated in this patent? A. Double what?

Q. Double the proteins?

A. No, I don't think they did.

By the Court:

Q. What? A. Not that I remember.

By Mr. Butler:

Q. You don't remember?

By the Court:

Q. Do you know what protein is? A. No, sir.

By Mr. Lyons:

Q. Can't hear you? A. No, I do not.

By Mr. Butler:

Q. Do you know what the nutritive value of flour is?

A. I do, in a general way.

Q. Why, didn't these men who were selling you the patent tell you that it would increase the nutritive value, make fat and distribute it all over, and all that? A. No, sir.

Q. Didn't they tell you it would increase the nutritive value?

A. There was nothing of that kind discussed when I put the machine in.

Q. Well, what was your understanding about it, don't you think that it does—well, it is stated in the patent that treat-

ment by the Alsop process increases proteins over twelve per cent of the total, there being about thirteen to start with, and add twelve, would make it about twenty-five, and tell us of course that makes it very much more nutritive; now, is it not your experience that it does make the flour very much more nutritive?

A. My experience is that it makes a better loaf of bread.

Q. Yes, and of greater food value, more nutriment in it?

A. I am not a chemist.

Q. What is that?

A. I am not a chemist, I don't profess to be.

Q. No, neither is a man when he is buying hay for his horse, a chemist, but he knows one kind of hay has more nutriment in it than the other. Now, isn't it your observation that this bleaching process improves the nutriment of the flour, or injures it, one or the other?

A. Well, I can't say as to that.

2188 Q. You don't know about that. Were you here when Dr. John A. Wesener testified? A. No, sir.

Q. Now, your experiment shows that by his treatment a little more than one per cent of the total weight of the flour is lost by bleaching? A. Yes, sir.

Q. Now, will you say that that is the uniform thing, and that .14 of one per cent is not the truth?

A. I don't understand the question.

Q. It has been asserted here that .14 of one per cent is the amount of loss of weight by bleaching. Now, do you disagree with that and say it was seven times as much, seven or eight times as much as that?

A. No, it would not be seven.

Q. What is that? A. I found a loss of eleven.

Q. No, no, by bleaching, I am speaking of per cents; you lost one per cent, and it has been asserted here by a man who has examined a great many thousand of samples, and he makes it about one-seventh of one per cent.

Judge Scarritt: I object to that as commenting on the other witness's testimony.

The court sustained the objection.

Q. Well, was there more than one-seventh of one per cent, as a fact?

A. Our experience showed it to be more than one-seventh of one per cent; that is all I know.

Q. Did you lose any flour in that experiment?

A. No, sir, only what we accounted for. You have overlooked the fact of the other eleven pounds, which of course it lost.

Q. The other eleven pounds were lost on some other flour?

A. It is the same flour, the same loss.

Q. Well, I know, some more of the same kind of flour?

A. Yes, but the net result is a difference between eleven and thirty-seven.

Q. But then you put the flour through again and it only lost seven? A. Yes, sir.

2189 Q. Why didn't you put it through once more. Is it a good thing to dry flour out when you are milling it?

A. In a reasonable way, yes, sir.

Q. Well, it is a reasonable way to run it through the agitator with pure air in the agitator? A. Yes, sir.

Q. Why don't you dry it out that way instead of putting nitric acid in it?

Judge Scarritt: We object to that because not based on any testimony in this case.

Q. Why don't you dry it out in that way? [A.] Withdraw that question. Why don't you dry it out that way instead of putting this gas in?

A. Well, it might be worth trying, I don't know.

By the Court:

Q. Where do you think this loss went, in the agitator and in sacks? A. Moisture.

Q. Where did it go to? A. In the air.

Q. How did it get out into the air?

A. The agitator is not air-tight, and it travels up the leg of the elevator and down through the spout and these bins, that is, they are not exactly bins, but you know it will get away.

By Mr. Butler:

Q. Do you smell the gas, did you smell the bleaching gas?

A. No, sir.

Q. The place is too tight for the gas to get out, isn't it?

A. The agitator, yes, it is, I don't think the gas is strong enough to smell that.

Q. The pipe wouldn't let it out. You don't think that thirty-seven pounds of water evaporated in this gas was strong enough to smell?

A. You ask if I smelled it?

Q. Yes? A. I didn't smell it.

Q. Were you there? A. Yes, sir.

Q. Did you ever smell any bleaching gas around your mill?

A. Where the electrifier is, yes, sir.

Q. That is, where it is made? A. Yes, sir.

2190 Q. You smell it where it is made. Did you ever smell it where it bleaches the flour? A. No, sir.

Q. Did you ever try? A. Yes, sir.

Q. It does not smell while it is in the agitator of your mill?

A. In the agitator it smells.

Q. It smells at the electrifier, at some mills in the agitator; does it smell where the flour comes out of the agitator?

A. No, sir.

Q. What do you think becomes of that, you say it all goes off in the air, moisture and everything, thirty-seven pounds in this experiment; what do you think becomes of the gas that smells where it is made and smells where it goes into the flour; where do you think that smell goes to?

A. I expect it goes into the air, it is so slight, though.

Q. But you don't smell it in the air?

A. So slight I don't suppose you notice it.

Q. You don't smell it in the air?

A. No, it is a large room like this.

Q. You smell it where it is made and smell it at the agitator?

A. Where it is made it is in a small room.

Q. And after it goes into the flour you never smell it again, is that true?

A. I don't smell it in the flour, no, sir.

Q. So the smell must stay in the flour?

A. You don't smell it in the flour.

Q. Your machine is making the smell, isn't it?

A. Yes, sir.

Q. And you are leading the smell into the flour, aren't you?

A. Yes, sir.

Q. And it smells when it goes into the flour, doesn't it?

A. It is only a slight smell there.

Q. And that is the end of the smell, isn't it?

A. As far as I know.

Q. So the smell stays in the flour, doesn't it?

A. I don't know whether it does or not.

Q. You don't care either, do you?

2191 By Judge Scarritt:

Q. Did you ever smell it in the flour?

A. No, sir.

By Mr. Butler:

Q. Did you ever try it? A. Yes, sir.

Q. Had occasion to try it?

A. Well, I wanted to see what effect it would have.

Q. When did you try it?

A. When I first started the machine up.

Q. What made you think it might smell in the flour; what made you suspicious of it?

A. When I saw these electrodes and the small plant that was there I wondered whether it would do any work at all or not, it didn't seem possible.

Q. How many horse-power do you think?

A. How is that?

Q. How many horse-power did you use?

A. To prove this machine?

Q. Yes.

A. About two horse-power, one and one-half or two horse power.

Q. What is your capacity?

A. Seven hundred barrels.

Q. What is your power in kilo watts or horse power to make electricity to make this gas?

Judge Scarritt: The dynamo.

A. About two and one-half amperes.

Q. Well, what kilo watt is it, what horse-power is it?

A. 500 volts.

Q. Volts, yes, but what horse-power is it?

A. I am not an electrician.

Q. Well do you know of any that is made less than five-horse power by the Alsop? A. I don't know.

Q. No, do you know how much nitric acid that flaming arc will make in a year at five horse-power?

A. No, I do not.

Q. Do you say that it will not make seven thousand pounds of nitric acid in the air?

Counsel for claimant objected to that question.

The Court: He says he doesn't know anything about it.

Q. You don't know anything about it.

Redirect Examination

By Judge Scarritt:

2192 Q. You understand and what Mr. Butler means by nutrition or nutriment? A. Yes, sir.

Q. That is the quality of the bread and flour as a food?

A. Food value.

Q. Food value. Now, what do you say as to the relative food value of bleached and unbleached flour when made into bread? A. Well, Judge,—

Q. Which is the best?

A. I consider the bleached the best.

Mr. Butler: Judge, did you mean as to food value?

Judge Scarritt: Food value, he considers the bleached the best, he says.

Mr. Butler: Does he mean by that greater food value?

By Judge Scarritt:

Q. I understood you to say that you considered the bread made from the bleached flour the best? A. Yes, sir.

By the Court:

Q. You mean by that greater or less strength?

A. It is greater strength.

By Judge Scarritt:

Q. Now, he has asked you about your memory. Do you remember distinctly the differences in weight that you have stated here? A. Yes, sir.

Q. That is the amount of shrinkage, you remember that distinctly? A. Yes, sir.

Q. Now, is this flour or this bread that is made from this bleached—by this bleaching process—rancid flour, or rancid bread? A. No, sir, it is sweet.

Q. Or sour? A. No, sir.

Q. Or bad? A. No, sir.

Q. Or yellow? A. No, sir.

Recross Examination

By Mr. Butler:

Q. You are still bleaching? A. Yes, sir.

Q. Bleach clears? A. No, sir.

Q. Do you sometimes send your flour to the Kansas City Milling & Export Company of this city? A. Yes, sir.

Q. Do they sometimes sell it? A. Yes, sir.

2193 Q. Under what brands? A. Usually under "Stability".

The Court: "Stability" brand?

A. Stability Brand.

By Mr. Butler:

Q. This is a clear flour? A. Yes, sir.

Q. Bleached.

A. You mean now—what time are you talking about?

Q. Any time?

A. The present time, I wish to qualify my remark as to the bleaching, that we bleach for Missouri at the present time.

By the Court:

Q. How is that?

A. We bleach for Missouri, the state of Missouri. You asked me if we bleach now. I said yes, we bleach for the state of Missouri.

By Mr. Butler:

Q. I asked you if you ever bleach clear?

A. Ever bleach clear, yes, sir.

Q. And you furnish it to the Kansas City Milling & Export Company? A. If they would order it.

Q. Bleached flour?

A. If they ordered it bleached we bleach it.

Q. One of your cars of flour is under seizure by the government at Nashville, Tennessee, now, as clear flour that was bleached? A. Yes, sir, that is the kind.

Q. And you have defaulted in it, haven't answered it or claimed it, but allowed it to go to condemnation and destruction by default?

Counsel for claimant objected as incompetent, irrelevant and immaterial and not the best evidence.

The Court: He may answer.

A. We have filed our answer.

Q. When? I will advise you that the district attorney within a week said "that is in default, and I have been trying to find the owner to tell him that if he wants to have a lawsuit down there he had better apply to the court. Now, if you are the man you better apply to the court.

A. I am not the Kansas City Milling & Export Company.

Q. So you are not interested in the flour any more?

A. I am, to a certain extent, of course, but I understand
2194 they filed their answer, I don't know.

Q. I will advise you that it has not been filed

The Court: He thinks it has.

Witness: Wait just one minute there, a question of my veracity here.

Q. Well, I am giving you the information?

A. I am much obliged.

Mr. Butler: If you don't want the flour destroyed by default.

The Court: No, it is a proper question, not as to your veracity. Mr. Butler says he is in default, and the witness thinks he is not, so I don't know.

Witness: We don't want to be in default, Mr. Butler.

Mr. Butler: I thought I was doing you a favor to give you a chance to fight for your flour if you think it is all right.

Mr. Elliott: May I just interpose a word, I understood from Mr. Butler when the matter of trying this case was discussed, that he would give me what time was necessary to file an answer.

Mr. Butler: You never appeared in that case, Mr. Elliott.

Mr. Elliott: You did not specify any particular case, and I did send the answer to Mr. Clark.

The Court: So it is a misunderstanding down at Nashville.

Mr. Butler: Better attend to that. (To Mr. Elliott): You don't appear in it?

Mr. Elliott: Well, perhaps so.

By Mr. Butler, (resuming):

Q. Now, what percentage is that flour? A. The clear?

Q. Yes. A. About 17 per cent.

Q. 17 per cent. You hold that bleaching changes clear flour, don't you? A. You say I hold—

Q. You hold that this bleaching process cannot apply to the clear flour, don't you? A. I don't think so.

2195 Q. You think it improves the clear, don't you?

A. I have my views about it.

Q. You don't think it improves the clear?

A. It improves the color.

Q. Oh, then, it improves the color?

A. It improves the color.

Q. Makes it a little lighter?

A. Makes it a little lighter, but at the same time it shows up the imperfections.

Q. What did you bleach it for?

A. You want me to answer that?

Q. Oh, yes, I want to know why you bleach 17 per cent clear.

Judge Scarritt: Let him answer.

Q. I want to know why you bleached 17 per cent clear?

A. The Kansas City Export & Milling Company had a car of flour down there at Augusta, Georgia, that was unbleached, and the man refused it on account of color. The manager of the Kansas City Milling & Export Company sent to us for a sample of bleached clear; they took it and sent it down to that man, and they sold him this carload of flour on that basis. On the way down the flour gets seized at Nashville.

By Judge Scarritt:

Q. They ordered the bleached flour?

A. They ordered the bleached flour.

By Mr. Butler:

Q. Now, then, let me see if I understand this right.

A. Now, one word more, if you will pardon me.

Q. A good many.

A. That is the first car of bleached flour that the Kansas City Milling & Export Company ever had.

Q. You don't know where they got their flours, do you?

A. Well, I happen to be vice-president of that company.

Q. Oh, you are vice-president, so we have got the miller and the exporter here. Now, let us see now, as I understand you had a customer in Georgia had some flour that was unbleached?

A. Yes, sir.

Q. And it was so dark and unattractive in appearance that he would not take it?

A. He kicked on the flour on account of its color.

Q. Was that your patent? A. No, sir.

Q. Was it a patent flour? A. It was a clear flour.

2196 Q. A clear unbleached flour, so that he was all satisfied except the appearance?

A. That seemed to be the trouble.

Q. So that in order to satisfy him with respect to the appearance you took a 17 per cent clear and bleached it and sent it to fill the order?

A. We sold it on a sample of the 17 per cent clear.

Q. The man who would not take the unbleached flour because of color was satisfied with a sample of bleached 17 per cent clear? A. He seemed to be, he bought on the sample.

Q. So that a bleached 17 per cent clear is better as to color than an unbleached 17 per cent clear? A. Yes, sir.

Q. That is the reason you bleached it, wasn't it, to make it look better as to color?

Judge Scarritt: He said he bleached it because he ordered it bleached.

Mr. Butler: I don't want you to help this man; he is vice-president of the Export Company and the mill and flour tester and all.

Q. Now, then you do not support the proposition, do you, that bleaching will not improve the color and appearance and salability of clear flour, 17 per cent clear, short clears, as short as that, do you? A. I don't understand your question.

Q. You cannot understand that. Did bleaching improve the color of the flour that was seized at Nashville? A. Yes.

Q. Bleaching will improve the color of all similar clear flour, will it not? A. Well, it will age it.

Mr. Butler: I move to strike out the answer.

The Court: That will be stricken out, not an answer.

(Question read by the reporter.)

A. I would say it would improve it.

Q. That is the reason you bleached clears, isn't it, to make it more salable, improve its quality, make it of greater nutritive value? A. No, sir.

Q. Why do you bleach it then?

A. Bleach it because the people want it, when they want it.

2197 Q. And that is because it is more salable, isn't it?

A. I should think so, yes, sir.

Q. Have you with you an order for bleached flour?

A. How?

Q. Can you produce me an order in writing for bleached flour? A. This car that I speak of was ordered bleached.

Q. Can you produce that order? A. I haven't it with me.

Q. Can you produce it? A. I think I can.

Q. Who was the consignee?

A. The Kansas City Milling & Export Company.

Q. I know, but the Kansas City Mill & Export Company—

By Judge Scarritt:

Q. Which was the final purchaser.

A. No, I don't know the—

Q. Oh, you might get some orders for bleaching from that house, from the brokerage house, or the manager might give an order for bleaching to the miller, but I want an order for bleaching from that Georgia customer?

A. No, I have not that.

Q. You never saw that, did you? A. No.

Q. There is none such, is there? A. I don't know.

Q. Sir? A. I don't know.

Q. You don't mean to say he ordered the flour bleached?

A. I don't know, he bought it on a sample.

Q. Certainly, certainly, he found flour that was off in color and then your Kansas City Company showed him a sample and he bought on that?

A. I don't know whether they told him it was bleached or not; I am not running their business, you know.

Q. But they showed him a sample, you say?

A. It was sold on sample.

Q. Well, they would have to show him a sample?

A. Yes, sir.

Q. And then they ordered you to bleach it?

A. They ordered it just like the sample.

Q. And they sent you the sample?

A. He sent me the sample.

Q. You bleached it, you didn't have this sample from the Export Company?

A. Oh, we had our sample; we had our part of the sample on file.

Q. Did you furnish the bleached sample for the substitute for this unbleached flour?

A. When we sent the Export Company the sample—

The Court: They sent it on to Georgia?

A. They sent it to Georgia.

Q. You bleached a sample and sent it on?

The Court: You kept part of the sample and sent part to Kansas City?

A. We always do that.

By Mr. Butler:

Q. If you sell on sample, I suppose you sent up here to your Export Company a sample of bleached flour and retained part of it? A. Yes, sir.

Q. And retained part of it? A. Yes, sir.

Q. Then this man objecting to the car as having too dark a color, they furnished him that sample, as you understand?

A. I think so, I don't know for sure.

Q. Then they ordered you to bleach a car of flour for him according to that sample of bleached flour that you furnished them to send to him.

A. Yes, sir, that is the ordinary way for bleached or unbleached flour; we keep samples, you know.

Q. So the ordinary way is this, you bleach some samples and send them out, and if the color is approved, and the quality and every thing, then you bleach to that sample?

A. Now, understand me, we keep samples there bleached or unbleached so as to protect our trade.

By the Court:

Q. Send on half and keep half?

A. So we have something on file.

Q. And you bleach to the sample color?

A. Also when we run the flour to the unbleached, we have to make it like sample, that is part of the contract.

Q. You mill it to it, you either mill it in one case or bleach it in the other case to it? A. Well, can only mill—

Q. I know, but you can control color by milling?

A. Yes, sir.

Q. And if you do not bleach, you control it by milling, and if you do bleach you control it by bleaching, isn't that it?

A. Well, you might destroy—you might hurt the quality of flour by milling.

Q. Yes, so the reason you do not mill the color is because you might injure the flour, is that it?

A. Make it too soft.

2199 Q. And danger of poisoning it by milling it too much?

A. Make it heavy; I don't know whether it would poison it.

Q. What is that? A. No, I guess make it heavy.

Q. Make it heavy; so then, as I understand it, you are bleaching because you injure the flour if you control color by milling?

A. It does injure the flour; injures the working of the flour.

Q. But by bleaching you know you can improve its food value and its color at the same time? A. I think so.

Q. Why don't you bleach it all and give us the benefit of good food values all the time?

A. A man [is] running a flour mill has to cater to his trade.

Q. Now, isn't it the law down in Georgia, don't you know it is the law down in Georgia, that they cannot sell any bleached flour in that state?

A. I didn't know it at that time, Mr. Butler.

Q. But you found it out at that time, didn't you?

A. I found it out afterwards.

Q. And now isn't it because the statute law of Georgia makes it a crime for any man in the state of Georgia to have for sale or expose for sale in that state any artificial bleached flour, isn't that the reason?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial and not the best evidence.

The Court sustained the objection.

Redirect Examination

By Judge Scarritt:

Q. You speak of injuring flour by bleaching, you mean by attempting to make it white by milling?

A. By milling, yes.

Q. That makes it soft so that it is not good for bread, is that right? A. Not as good.

Mr. Butler: That is objected to as leading.

The Court: Well, anything further with this gentleman.

Judge Scarritt: No, sir; that is all.

2200 J. C. Dolan, called as a witness on the part of Claimant, being duly sworn, testified as follows:

Direct Examination

By Judge Scarritt:

By the Court:

Q. State your full name? A. J. C. Dolan.

Q. Where do you live? A. St. Joseph, Missouri.

By Judge Scarritt:

Q. Are you connected with the Davis Milling Company at St. Joe, Mr. Dolan? A. Yes, sir.

Q. Did you assist Mr. Clark, the manager of the mill, in making these tests that he has spoken of in his examination?

A. Yes, sir.

Q. State to the jury what you did.

A. Well, we first weighed up twenty five sacks of fresh flour right off of the mill.

By the Court:

Q. Unbleached? A. Yes, sir, fresh unbleached flour.

Q. Speak so the jury can hear you?

A. Ran it through the agitator, bleached it, backed it off, found a loss of 37 pounds; we ran up the same amount of unbleached flour, without bleaching, we found eleven pounds less.

By the Court:

Q. Was the first unbleached?

A. The first was unbleached, but we bleached it as we ran it through.

Q. A loss of 37 pounds? A. Yes, sir.

Q. The second experiment? A. Was 11 pounds.

Q. The same wheat? A. Yes, sir.

Q. And it came out bleached with a loss of—

A. Unbleached.

Judge Scarritt: Came out unbleached.

By the Court:

Q. The second you ran through the agitator in the air?

A. Yes, sir.

The Court: Yes, I see.

By Judge Scarritt:

Q. Came out with a loss of 11 pounds?

A. Yes, sir; then we ran twenty-five sacks of bleached flour to determine the actual loss in handling, and that was 7 pounds.

Q. That is the same flour that you bleached and lost the 37 pounds of?

A. Yes, sir; we ran it over the same machine to determine—the loss of actual handling.

2201 By the Court:

Q. Bleached or unbleached?

A. We ran the bleached flour over the machine without any gas, the same machine.

Q. Did you run it through the agitator? A. Yes, sir.

Judge Scarritt: With a loss of 7 pounds.

A. Just the same, it took the same track.

By the Court:

Q. Were the agitator paddles in motion?

A. No paddles in it.

Q. There was something you call them paddles or something? A. There is some flights fastened inside solid.

Q. Something that mixes the flour up into a collection of dust in there? A. Yes.

Q. Whether you call them paddles or not; I never saw one of them, I don't know.

By Judge Scarritt: (Resuming)

Q. Let see if I understand it. The first batch of 25 sacks, how much did they weigh? A. 140 pounds, 3500 pounds.

Q. You ran through the mill and bleached it?

A. Yes, sir.

Q. And weighed it and found a loss in shrinkage of 37 pounds? A. Yes, sir.

Q. Then you took the same amount of flour and ran it through the mill without bleaching it and got a loss of 7 pounds? A. 11 pounds.

Q. I mean 11 pounds, then you took this same flour that had been bleached and ran it through the mill with the bleacher in operation, and found a loss of 7 pounds? A. Yes, sir.

Q. Showing a loss in bleaching of the difference between 37 pounds and seven pounds, which would make a net loss of 30 pounds? A. A net loss of 30 pounds in bleaching.

Q. Now, you were present at these three experiments that were made by yourself and Mr. Clark? A. Yes, sir.

Q. Did you make any other experiments of the same nature?

A. Yes, sir.

Q. How many?

A. I made two or three before and two or three after, I don't remember just how many, they were all practical-

2202 ly the same, the figures came out just about the same percentage.

Q. That is, no appreciable difference in nine or ten experiments? A. No, sir.

Q. In the loss—

Mr. Butler: He didn't say nine or ten experiments.

Judge Scarritt: He said about the same.

The Court: Go on.

Q. Well, was there any appreciable difference in the loss in all of your experiments, and did they come out about the same? A. Just about the same.

By the Court:

Q. I don't know as I understand this or not. Now there is 140 pounds to the sack? A. Yes, sir.

Q. That is, sack and flour both? A. Gross weight.

Q. Twenty-five sacks would equal 3500 pounds?

A. Yes, sir.

Q. Of flour and sacks? A. Yes, sir.

Q. So then you would have 3500 pounds, minus 25 for the sacks? A. No, sir, they don't weigh 25.

Q. Would they weigh about a pound apiece?

A. No, sir, not quite.

Q. Well, pretty nearly?

A. $13\frac{1}{2}$ ounces a piece generally.

Q. Well, we call it a pound.

A. All right, you can call it that.

Q. Then you have 3500 minus 25, minus 37, for loss in weight, wouldn't you? A. Yes, sir.

Q. Plus the weight of the new sacks, would that be it or not, I am trying to find out?

A. I believe you have got it right, I don't understand.

The Court: Well, go on.

A. We weighed our new sacks, and we weighed the sacks, we dumped to determine our actual loss, and weighed the stuff in new grades and different grades.

By Judge Scarritt:

Q. Yes, so that your shrinkage is the exact shrinkage of the flour taking out the weight of the sacks?

A. Yes, sir.

2203 Objected to as leading.

Q. Both before and since.

The Court: He may answer.

Q. What effect does bleaching have on flour?

A. Whitens the flour; it is a better loaf of bread to me.

Q. What with reference to the moisture?

A. It draws part of the moisture, gives the flour a little more absorption.

By the Court:

Q. Sir?

A. Gives the flour more absorption, takes out some of the water.

Q. And what effect does it have on the bread making quality of the flour?

A. Makes it whiter and more wholesome and better looking on the table.

Q. Have you made any experiments in that line or baked bread? A. Yes, sir.

Q. To ascertain that—how long have you been in that mill, Mr. Dolan? A. Six years about.

Q. And the bleacher has been there four years?

A. Just about four.

Q. Have you made any change in your pipes in the bleacher since the mill was started, the process was started?

A. Change in the pipes, what do you mean by that?

The Court: From the electrifier over to the agitator.

A. Do you mean changed or renewed?

By Judge Scarritt:

Q. Renewed. A. No, we have not renewed any.

Q. Have you had any pipes eaten out by the gas during that time? A. No, sir.

Q. Had to make a change on that account? A. No, sir.

Q. Have you had any observation or experience as to the time that flour will last as to the length of time with flour mills? A. Well, I have had some experience.

Q. What is that?

A. Yes, I have had some experience in that; I don't know what the length of time would be; I have known flour to be seven years old and ate it.

Q. How is that?

A. I have known flours to be seven years old and ate it; it was good.

Q. Was it good flour? A. Yes.

2204 Q. Are you head miller there or what is your position?

A. Yes, sir.

Q. Head miller? A. Yes, sir.

Robert G. Bullock, called as a witness on the part of the Claimant, being duly sworn, testified as follows:

Direct Examination

By Judge Scarritt:

By the Court:

Q. What is your name? A. Robert G. Bullock.

Q. You live where? A. Crete, Nebraska.

Q. That is out west of Lincoln 25 or 50 miles?

A. 20 miles.

By Judge Scarritt:

Q. Are you connected with any flour mill in Crete, Nebraska, Mr. Bullock? A. Yes, sir.

Q. What is it? A. The Crete Mills is the Company's name.

Q. Did they use the Alsop process? A. They do.

Q. How long have they used it?

A. Since October 11, 1904.

Q. Have you been there during that time?

A. All that time.

Q. What is your position in the mill? A. Head miller.

Q. Had charge of the mill all that time? A. Yes, sir.

Q. Have you used the same pipes in the mill during that time from the electrifier to the agitator? A. Yes.

Q. That is, conducting the gas from the electrifier to the agitator? A. Yes, sir.

Q. Have there been any changes made in these pipes by reason of rusting, or anything of that kind?

A. There has not.

2205 Q. Used the same pipe all the time?

A. The same pipes.

Q. I hand you a piece of pipe—

The Court: Rubber or iron?

Q. Iron, wrought iron. Iron pipe, marked "Exhibit 271" and ask you if it is a piece of pipe that you used there for six years? A. It is.

Q. I will ask you if the balance of the pipe that you have there is in the same state of preservation that that is?

A. It is equally good.

Q. All of it. Now I will ask you if that pipe is the same kind of pipe as the exhibit which I show you, which is marked exhibit "Government Exhibit 14"? A. It seems to be.

Q. It is the same isn't it? A. A black iron pipe.

By the Court:

Q. What is it, cast or wrought iron or what?

A. Supposed to be wrought iron.

Q. It is wrought iron too?

Mr. Butler: I object and move to strike out Judge Scarritt's testimony.

The Court: Well, I don't know.

Q. This is not galvanized iron pipe, is it? A. No.

Q. Now this is a piece of the pipe that the gas passes through, as I understand it, from the electrifier to the agitator? A. Yes, sir.

Q. And have you been bleaching all the time for six years?

A. Nearly all the time.

Q. And all the time you have been bleaching this pipe has been used. A. Yes, sir.

Q. Does this carry all the gas made near the agitator or that is I mean electrifier?

A. This carries to one agitator.

Q. How many agitators do you use? A. Two.

The Court: That is after it forks.

Q. This is after it forks and goes to one agitator?

A. Yes, sir.

Q. Do you use the two agitators all the time?

A. No, not all the time.

Q. Has this pipe been in the agitator that you have used, what is the difference, do you use one about as much as the other on the flour?

A. One is used more than the other, that is.

Q. Is this from the agitator that is used the most or the least? A. The most.

Q. And it has been in practical use. Practically in use during the whole of the six years? A. All the time.

Q. Have you any other pipe in your mill that does not carry the gas from the electrifier to the agitator?

A. Yes, sir, steam pipes.

Q. How is that? A. Steam pipes.

Q. Does that carry any gas at all—before proceeding to that, I will show you "Exhibit 272" and ask you if that is also a piece of pipe and a piece of the hose that you use on your machine? A. It is.

Q. That is near the electrifier, isn't it?

A. The hose attached to the electrifier.

Q. And this pipe, the pipe which is marked "Exhibit 273" carries all the gas? A. All the gas we ever generated.

Q. All the gas you ever generated, and the rubber pipe attached to it carries all the gas you ever generated?

A. It is not carried all—the hose is two years old.

Q. You have replaced the hose? A. Yes, sir.

Q. Why did you replace it?

A. Because the heat of the machine dried the hose out and made it brittle and cracked.

Q. The heat of the machine dried the rubber hose out?

A. Yes, sir.

Q. But this has been on two years? A. Two years.

Q. How long has the other hose been on that particular one? A. Somewhere between two and three years.

Q. But this pipe that is attached to the hose has been on there for the six years? A. Six years.

Q. Now I asked you if you had any other pipe that was not connected with your electrifier, and you said yes. Is this the pipe? A. That is a piece of the steam pipe.

Q. A piece of the steam pipe. Is that connected in any way with the gas at all? A. No, not at all.

2207 Q. No gas goes through it? A. No, sir.

Q. What goes through there? A. Steam.

Q. And water?

A. Steam and water, condensed water.

Q. Condensed water from the steam. How long has that been actually.

A. Since the summer of 1907, three winters; it is a part of the radiator.

Q. That is three years? A. Three years.

Q. And there is nothing but steam and condensed water that has been going through that? A. Nothing.

Q. Is that the same kind of iron as the other in this that you have presented here? A. Yes.

Q. The same kind of iron. Is there any eating out of that pipe by the water and steam that goes through it?

A. It has a hole in it.

Q. It has one there. Which part of the pipe is down; is this part of the pipe down?

A. That part of the pipe was down.

Q. And the water ran through there? A. Yes, sir.

Q. And do you notice a hole there that is eaten out by the gas or the air, or whatever it was? A. I do.

Q. And a little trough made by the passage of the water?

A. Yes, sir.

The pipe referred to by the witness was marked by the stenographer Exhibit 273.

Judge Scarritt: I introduce these exhibits in evidence.

The Court: Very well.

Cross-Examination

By Mr. Butler:

Q. This pipe that you have described as a water or steam pipe, is it an open pipe or closed pipe when it is in use?

A. Closed pipe.

Q. And was it full of water all the time?

A. No, it is part of the radiator.

Q. Part of the ordinary heating radiator?

A. Yes, a coil of four pipes along the wall.

2208 By the Court:

Q. For heating? A. For heating the mill.

By Mr. Butler:

Q. Your experience is that heating radiators eat out in about three years?

A. Not always, but this one did.

Q. Generally?

A. In three or four years, yes sir.

Q. And you brought this in here to prove to this jury that a heating radiator only lasts about three or four years in your mill, is that right?

Judge Scarritt: We object to that as incompetent, irrelevant and immaterial and improper examination.

The Court: He may answer.

To which ruling of the court claimant than and there duly excepted.

A. That it might eat out is why I brought it.

Q. Well, is it your experience as a man familiar with heating pipes about houses and mills that the steam pipes in the ordinary steam radiators will last only about three years?

A. I have had them eat out in three years.

Mr. Butler: I move to strike out his answer as not responsive.

Judge Scarritt: He has asked about his experience, and he is telling it from his experience, and I object to it being stricken out.

The Court: I think it should be stricken out.

To which ruling of the court claimant then and there duly excepted.

Q. Is it not known to you that ordinary steam pipes used in steam radiators last indefinitely?

A. Sometimes they do.

Q. Generally they do, do they not?

A. More frequently than that they eat out, I think.

Q. Last from generation to generation?

A. I don't know about that.

Q. Well, you have known some, haven't you, for twenty years still in use? A. No.

Q. Don't you use steam heating a good deal in Nebraska?

A. Yes, sir.

Q. Don't you know that schoolhouses and your own house and the courthouse and all those places that use steam, don't you know that they last as long as the building does, as a rule?

2209

A. I don't know, I think they last a good while, but I don't know how long.

Q. Well, was it your idea that you could convince the jury by bringing in this pipe, that steam ate out pipes in about three years?

A. That it might eat out pipes.

Q. What is your idea about that, what makes it eat out one and not the other? A. I don't know.

Q. Some impurity in the water, you imagine?

A. It might be.

Q. A little nitric acid will do it, won't it?

A. I don't know.

Q. Don't know about that. Did you clean this exhibit rubber hose which you brought in here? A. No.

Q. It keeps as clean as that, does it, uniformly?

A. Yes, sir.

Q. The defense in this case has brought in quite a number of this rubber hose from various mills, and everyone that was brought in, by putting my fingers into it, as I did in the presence of the jury each time, like that, the fingers would come out as if they were covered with lamp black, and on this they come out apparently unchanged in color. Can you tell us why it is there is such a difference? A. I cannot.

Q. Between your mills and other mills?

A. I cannot.

Q. You cannot. Now, then, take the iron that is fastened to this rubber, it is practically clean, is it not?

A. It seems to be.

Q. As clean as though it came from the factory, isn't it?

A. I don't know.

Q. Well, you have seen new pipes that are shipped in commerce? A. Yes.

Q. And that pipe is just as clean as a new pipe shipped in commerce, isn't it?

A. It is a good pipe, yes.

Q. And it is just as clean on the inside, isn't it?

A. I never examined there, you know.

The Court: Put your finger in it and see.

A. Yes, I guess it is.

2210 Q. Just as clean, the screws on this pipe are just as sharp, are they not, as though it had just come from the die, aren't they? A. Yes, sir.

Q. The hose looks in all respects like a new hose?

A. No, sir.

Q. No, I guess not. A. It is dry, hard.

Q. It is dry and hard. What did you cut it in two for, why didn't you bring it all?

A. Because I could not get it out without breaking, I sawed it in two.

Q. You could not get the rest out without breaking it, it was so brittle; how long was that hose used?

A. Three years.

Q. The other one was so brittle that it broke? A. Yes.

Q. But no dirt ever accumulated in it?

A. No, it stands vertical.

Q. Did this pipe that you brought in here stand vertical too?

A. The big piece is not, it is horizontal.

Q. Do you ever clean out your pipe? A. Yes.

Q. How often do you clean them out?

A. Why, not at stated intervals, they are never filled up.

Q. I guess you will have to do a little better than that; you will have to tell us a little more definitely; how often did you clean out your pipes there?

A. I have never taken the pipe down to clean it out.

Q. How often do you clean out your pipes there. I don't care whether you take them down or blow them out, I want to know how often you clean them out?

A. I cleaned them out, I think, about four times the length of time we have had them.

Q. You cleaned them out about four times?

A. To see if there was any dust.

Q. Was there any dust in it? A. There was some.

Q. What keeps the surface of this pipe so clean?

A. Nothing but sweeping, I suppose; it is brushed every day.

Q. You notice that that pipe is not as clean as the other one, the other iron pipe that is fast to the hose, don't you?

A. Yes, sir.

Q. How do you explain that?

A. The electrifier is oiled a little, and I suppose the oil prevents that from rusting, this one is closer.

2211 Q. You think it is near the electrifier where the heat is, you think that the acids don't have a chance to work as well, is that it?

Counsel for the claimant objected.

The Court: He may answer.

A. I don't know about the acid I think it does not rust.

Q. You observed that it does not rust near the agitator?

A. No.

Q. Near the generator, you mean?

A. Generator, electrifier.

Q. But does it rust more near the agitator?

A. Yes, sir.

Q. How often do you clean out the steam pipes?

A. Never did.

Q. Why? A. I never took it down.

Q. Why didn't you clean that out?

A. I suppose it had nothing but water in it to work.

Q. You thought there was nothing but air in the bleaching pipes, isn't that all?

A. They might draw dust from the air.

Q. Might draw dust from the air from the outside. Do you blow dust into your flour? A. Not intentionally.

Q. Well, it could not draw the flour in because it is blowing into the flour, got the pump blowing it in?

A. It has to draw air from somewhere, it blows air out of doors.

Q. Yes, I understand, so you can clean out the pipes by blowing air through them, can you? A. Yes, sir.

Q. And all the time you are bleaching you are blowing air through them, aren't you? A. Yes, sir.

Q. That has a tendency to clean them out all the time, doesn't it, to keep them clean; so your idea is that if there is any dust formed in there by this gas, and the pipe the way your plant is, the air going through there keeps blowing it out?

A. I presume so, if there is any formed.

Q. So that if there would be any nitrates of iron formed by nitric acid here, your idea is that when it became detached and loose it would be blown right into the flour, isn't it?

Counsel for claimant objected as assuming that nitrate or nitric acid or anything else except common rust was in that pipe.

2212 The Court sustained the objection.

Q. Well, if there is any rust, any accumulation, or anything, no matter whether it comes from the atmosphere or anything else, that gets loose in that pipe, it is blown right into the flour?

A. No, I don't think so, the pressure is not great enough if there were any in it, I don't think.

Q. Do you have a storage tank there? A. No.

Q. You just have a straight system? A. Yes, sir.

Q. No storage tank at all? A. No storage tank.

Q. You blow it right into the flour, the gas right into the flour from your machine? A. Yes, sir.

Q. Find it works satisfactorily? A. Yes.

Q. Find that it improves the flour?

A. Leaves it whiter.

Q. Naturally ages it, makes it taste better, and makes it richer in food value? A. I don't know anything about that.

Q. Makes a more beautiful loaf of bread, more healthy, raises the volume of the loaf and tastes better?

A. Makes a whiter loaf of bread, that is all I know about it.

Q. You find clears cannot be bleached by this Alsop process, don't you? A. We don't bleach clears.

Q. Well, you have tried it sometimes? A. Yes.

Q. By that process, and you find it destroys impurities?

A. No.

Q. Improves the appearance of them?

A. It makes the impurities show up more prominently.

Q. And hurts the appearance of clears?

A. Why, to my point of view it does.

Q. Now, you take the clears and mix them sometimes with the others? A. No.

Q. What percentage do you make down there?

A. We make flour as good as 75 per cent and from that up to the limit.

By the Court:

Q. Up to what? A. To the full limit.

Q. When you make 75 per cent what do you call the balance?

A. Clear and low grade.

2213 Q. Clear and low grade, never bleach any of that together? A. No.

Q. What is the shortest flour you make?

A. When we make a ninety per cent flour we make a 3 per cent low grade and seven per cent clear.

Q. Do you ever try to bleach the seven per cent clear?

A. Experimentally, yes.

Q. It won't work?

A. It does not make it look any better to my mind.

Q. It improves the flavor, doesn't it?

A. I don't know anything about that; I never tried it for flavor.

Q. Well, weren't you asked in direct whether it improved the bread? A. I was not asked.

Q. No, I guess that was the last witness, whom I did not cross-examine. You never noticed any great improvement in the food value of the bread? A. No, sir.

Q. Or in the flavor? A. No.

Q. Or in the odor? A. No.

Q. How many horse-power do you use down there?

A. For what purpose?

Q. To make gas to bleach flour with.

A. I don't know exactly.

Q. About how many?

A. The machine drives with a five inch belt, so I presume about three horse-power.

Q. You think the size of the belt controls the horse-power?

A. I certainly do.

Q. What size pulley?

A. The pulley, I imagine, is eight inches in diameter.

Q. Suppose it was four inches and the same size belt, what would the horse-power be? A. It would be greater.

Q. Twice as great? A. If it did not slip, yes.

Q. So you have to take into account something besides the size of the belt, don't you? A. Yes, sir.

Q. Now, isn't that a five kilo watt machine, or five horse-power? A. Three and a half kilo watts machine.

2214 Q. And that is about five horse-power?

A. Yes, if it was rated to the maximum it would be.

Q. That is what you get to bleach flour. How many barrels of flour do you average a day when you bleach?

A. Three to four hundred.

Q. Of bleaching, how many do you make without bleaching?

A. From four hundred to five hundred—five hundred.

Q. You bleach very lightly, do you? A. Very lightly.

Q. How much nitrite do you put in the flour by your bleaching? A. I don't know.

Q. Did you ever have it tested? A. No.

Q. Well, you know this Griess test? A. Yes, sir.

Q. Well, you know before you put it in, that it won't give the test, and after it comes out it will, don't you?

Counsel for claimant objected.

Mr. Butler: I want to find out these facts.

The Court: He may answer.

A. I don't know how much gas we put through the pipes.

Q. You know this re-action they call the nitrite re-action, when you put the Griess test on the flour, you have seen that done, haven't you? A. Yes, sir.

Q. And you know that before you bleach it, it won't have it, don't you, and after you bleach it it will give re-action, you know that, don't you? A. Yes, sir.

Q. Now, did you never try to find out how much nitrite you were bleaching, putting in the flour? A. No.

Q. But you have found out it does some?

A. I have found it gives a pink color with the re-agent, that is all I know.

Q. That you understand to be nitrites, whether it is or not, you leave to others, that is a fact, isn't it?

A. I know it gives a pink color with the re-agent, that is all I know.

2215 Q. Now, why don't you bleach it more and get it whiter; why do you bleach lightly?

A. It satisfies the trade apparently, as it is.

Q. Can you produce an order of any customer of flour for bleached flour? A. I do not handle the orders.

Q. Can you produce a sack that you ever labeled "bleached"?

A. I think I could.

Q. For sale in interstate commerce?

A. Yes, sir, I think I could.

Q. All right. Now, you label your flour sacks "bleached"?

A. Years ago it was necessary for Kansas trade to label them "bleached".

Q. It is yet, isn't it? A. Yes.

Q. In Kansas. Now, outside of a state where you were compelled to do it by law did you ever label a sack bleached for any trade unless you happened by mistake to get a car into Kansas that you had to reconsign, did you ever in your life mark it bleached unless you had to by law? A. No.

Q. Did you ever advertise it that you were bleaching, in the newspapers? A. No, sir.

Q. Or in any of the trade journals? A. No.

Q. You advertise your flour in the journals represented by this gentleman here, don't you? A. No.

Q. The Modern Miller, don't advertise at all?

A. It is in the Northwestern Miller.

Q. That is in Minnesota, published in Minneapolis by W. C. Edgar, isn't it? A. Yes, sir.

Q. Did you ever advertise in that paper that your flour was bleached? A. No, sir.

Q. Why not; it improves the looks of it, people want it; why don't you do it?

Counsel for claimant objected.

The Court: He may answer.

A. I don't know; I don't have the advertising contracts to let, and the reasons I don't know about.

Redirect Examination

By Judge Scarritt:

2216 Q. Did you advertise that you had unbleached flour?

A. We have written the trade to that effect.

Q. Do you ever advertise you had rollers in your mill?

A. No.

Q. Or bins in your mill? A. No.

Q. Or what kind of apparatus you had in your mill?

A. No.

Q. At any time, before or since bleaching? A. No.

Q. How much horse-power do you actually use, if you know? A. About 150 to 175 horse-power.

The Court: You mean that?

Judge Scarritt: I mean for your dynamo.

The Court: Electrifier, whatever it is called.

A. I think about two horse-power, probably, I don't know, it does not run to the maximum capacity.

Q. But you don't use the maximum power of the engine?

A. No, sir.

Q. Which is possibly five horse-power. Now, Mr. Butler has asked you if in the majority of cases or usually water parts and radiator parts do not last indefinitely. You say that you have known them to last two or three years, and some of them longer. Now, would you say the same thing, as far as your knowledge goes, as to pipes in actual use in the bleaching of flour by the Alsop process?

A. My experience has been that they would last as long as pipes anywhere.

Q. As long as pipes anywhere. Then if there is any defect in the pipes in a mill it is either accidental or unusual, isn't it? A. Yes.

Q. As far as your knowledge goes?

Mr. Butler: I don't like to object to leading questions.

Judge Scarritt: Just got one more to ask.

Q. Now, this pipe that Mr. Butler has asked you about, this hose pipe, I will get you to state whether or not that was a second-hand pipe when you put it in there?

A. It was a piece of old fire hose that I got from the fire department.

Q. Had it been used in the fire department?

A. Yes, sir.

Q. Second-hand when you put it in there? A. Yes, sir.

Q. Now, he has asked you about the Kansas requirements. I will get you to state if the Nebraska law allows bleaching of flour? A. It does.

Q. Permits it? A. Permits it.

Q. Permits it by an act of the legislature?

Mr. Butler: I move to strike that out.

The Court: It will be stricken out.

Judge Scarritt: We object to its being stricken out. We offer to show by this witness—

The Court: Go on and show it, but I shall charge the jury that no state can control interstate business.

Judge Scarritt: No doubt about that.

Mr. Butler: The law speaks for itself.

The Court: Go on and answer; he may answer, but the state of Nebraska can no more allow anything if it is wrong and unlawful—I will commence back, that no state can control interstate commerce, by its legislation, any more than, as I said in my opinion, than the state of Louisiana could authorize the lottery business as interstate business. You may answer.

Judge Scarritt: We except to the remarks of the court.

Mr. Butler: I have no objection if it is considered to be admissible, that Judge Scarritt or the court or somebody reads the law of Nebraska.

The Court: I have to take judicial knowledge of what the law is.

Mr. Butler: But I object to a miller being called here to swear to the laws of another state.

The Court: Go on and answer, won't you please answer the question, and recite the Nebraska law?

A. I don't know the Nebraska law?

The Court: That is all, he don't know.

By Judge Scarritt:

Q. But you know the law does prevent the bleaching of flour? A. I do.

Q. By nitrogen peroxide.

By the Court:

Q. Is that what it says nitrogen peroxide; you know that the statute says nitrogen peroxide?

A. That is my belief.

2218 Q. What percentage? A. No.

Q. What horse-power? A. No.

Q. How many barrels per day with the horse power and the electrifier? A. No.

Q. You don't know anything about it.

Judge Scarritt: I have got a copy of it right here.

Mr. Butler: Do you admit that the Alsop bleaches with nitrogen peroxide?

Judge Scarritt: I do not admit anything. I am telling what the law is, and claim that it does permit it.

The Court: I am compelled to take judicial notice of it.

At this point court took a recess until 2 o'clock P. M.

Court met at 2 o'clock p. m., Wednesday, June 29, 1910, and proceeded further with the trial of said cause as follows:

R. G. Bullock, resuming the stand, was cross-examined further by Mr. Butler, and testified as follows:

Q. I call your attention to the pipes which you have here produced Ex. 271, a part of the pipe from the Alsop bleaching plant; Ex. 272, a part of the rubber and piping from the Alsop bleaching plant; and Ex. 273, the piece of steam pipe from the heating radiator. These exhibits have been more plainly marked than when you were examined, this morning, by pasting on these, pieces of paper, and marking the paper, but I think they are marked the same. I have correctly described each one, have I not? A. Yes, sir.

Q. I now hand you exhibit 272, and ask you to look at it. Tell me how far the iron pipe extends into the rubber?

A. Not over half an inch.

2219 Q. Has it been that way for three years?

A. It has.

Q. It is in the same condition that it was while in use for three years, at the bleacher? A. Exactly.

Q. I call your attention to the threads on the iron, next to the rubber, and ask you if you see some particles of substances in the threads? A. I do.

Q. Are they not pieces of rubber hose? A. They may be.

Mr. Butler: I call the jury's attention to what I refer to in the threads, just above the rubber.

Q. You observe, there in those threads, do you not, pieces of substance which you believe to be pieces of rubber hose?

Q. How did they get there?

A. That pipe had to be screwed onto the thread, because the pipe had to be stretched over it, and it is probable that they were chewed off in the process of screwing that on. It was a hard job to make a 2½ inch piece go over a 2-inch nipple.

Q. That occurred three years ago, then? A. Yes.

Q. This pipe is very hot, isn't it?

A. It feels hot to the hand.

Q. I do not mean melting hot. And your idea is these pieces of rubber were put into the threads, there, when you put it on, and that they remained there since?

A. If they are rubber, that is how it got there.

Q. How long was the hose, before you cut it?

A. About 15 inches.

Q. And you bring here about how many inches?

A. 8 or 9.

Q. Well, it is a good 9 isn't it? About 9½ is it not, according to this rule? A. Yes, sir.

Q. So, that leaves about $5\frac{1}{2}$ that you cut off?

A. Yes, sir.

Q. When did you cut it off? A. The 11th day of June.

Q. The 11th day of June? A. Yes, sir; this year.

Q. Where is the piece that you cut off.

A. It was broken, in getting it off the electrifier, and has been burned up.

Q. Why was it burned up? A. It was no good.

2220 Q. Well, it would show, wouldn't it, the condition it was in?

A. It was not in as good condition as that. It was more brittle. It was nearer the machine.

Q. This is the piece fartherest away from the machine?

A. Yes.

Q. I call your attention to the end of the rubber—not the end that was cut off, but the other end, which is on this iron nipple, and ask you if it does not appear to be freshly cut, just like the end which you say was cut on the 11th of June?

A. I think not.

Q. Does the difference in appearance in these cuts indicate to you that any such period of time as three years had elapsed?

A. I don't think there is difference enough to indicate it, no.

Q. To the ordinary observer, they look the same, do they not, both freshly cut?

A. I don't know about the ordinary observer. They don't look the same to me.

Q. Have you noticed the rubbers brought in here by other millers? A. No, sir.

Q. That have been in use for times comparable somewhat with the use of this one? A. No, sir.

Q. You have not seen them? A. No, sir.

Q. Now, take exhibit 271. That was a pipe leading to the agitator, was it not? A. Yes, sir.

Q. And is a $2\frac{1}{2}$ inch pipe? A. $2\frac{1}{2}$ inch pipe.

Q. The pipe leading from the genrator was also $2\frac{1}{2}$ inches?

A. Yes.

Q. The same size pipe?

A. The same size pipe.

Q. Was the other pipe, leading to the other agitator, the same size? A. The same size.

Q. Why is it that you have pipes here, so large, leading to your agitators?

A. The opening in the machine was that large.

Q. In what machine? A. The electrifier.

Q. Yes, I know: but when you divided up your main pipe— isn't it customary to reduce in size your "T"?

- A. It would, if I was piping under pressure, but the pressure is so slight, the gas travels better, unimpeded.
- 2221 Q. Did you install the pipe? A. I did.
- Q. And you didn't reduce at the "T"?
- A. Didn't reduce anywhere.
- Q. Was that for the purpose of avoiding accumulations in your pipe? A. Partly.
- Q. Now, take this steam pipe. Did that ever have the Alsop bleaching gas pass through it? A. No.
- Q. Sure? A. Sure.
- Q. Now, that is the same size pipe, exactly, that was used, that is exhibit 14, is it not?
- A. I don't know.
- Q. Well, look at it and see.
- A. It is an inch and a half pipe, I think it is.
- Q. The same size pipe, exactly? A. Yes.
- Q. Now, how did you get your gas into the agitator? Did you put it right in the open end of the pipe, into the agitator, or did you reduce it by a series of things as there is in this pipe?
- A. It goes in the full size of the pipe, into the top of the agitator.
- Q. Just blow in the full blast? A. Yes.
- Q. Why is it that you just brought in this piece, here, from the middle pipe? Why didn't you bring in the other?
- A. The pipe was 20 feet long, and I brought the only part of it that had a hole in it.
- Q. Why didn't you bring a piece nearer the end, so we could see the screws and fastenings, to see whether they remained sharp and clean, or corroded off?
- A. It was the hole I wanted to introduce.
- Q. You only wanted to introduce the hole? You didn't want to introduce the screw? (No response.)
- Q. All right. So, you can't furnish us the other end of that rubber? A. I can't.
- Q. Can you furnish us the other end of the pipe that that rubber went into?
- A. No. That is fast to the machine,—a part of the electricifier.
- Q. What is the capacity of your mill? A. 500 bbls.
- Q. How much do you bleach a year?
- A. I don't know how much we bleach.
- 2222 Q. Didn't you tell me, this morning?
- A. I told you we bleached, running at normal capacity, about 3 to 4 hundred bbls. a day, when we bleached. Sometimes we don't bleach.
- Q. How much do you make that you don't bleach?
- A. We don't bleach our clear and low grades.

Q. How many barrels do you put out that are not bleached?

A. Sometimes we put out the whole product, unbleached.

Q. I mean, take it for a year, the average, how many barrels unbleached do you send out in a year, or per day, for the whole year?

A. Probably 15 to 20 per cent of our flour is unbleached.

Q. What horse-power do you use to grind with?

A. We have water-power, and approximately 150 to 175 horse-power.

Q. Water power, and it is the power of 150 to 175?

A. Somewhere about that. I don't know exactly. It is hard to measure water power.

Q. Do you grind corn, there?

A. Not in our flour mill, no. We have a corn mill.

Q. Your mill capacity is 500 bbls. a day of wheat flour?

A. Yes.

Q. And your average capacity is about how much?

A. Average for the year?

Q. Yes. A. I don't know exactly.

Q. The average output, instead of capacity, I mean.

A. The average output, I suppose we run more than 2/3rds of the time; full time, 2/3rds of that amount.

Q. Two-thirds of that amount? The corn is not ground in the same place? A. No.

Q. By the same water power?

A. It is a different power, in the same town.

Q. It is the same stream? A. Yes.

Q. But not the same place, at all? A. No.

Q. Your mill is larger than 200 bbls. a day capacity, is it?

A. It is.

Q. Who got you to take off these pipes?

A. Mr. Ed. P. Smith wanted that.

2223 Q. Was he there when they were taken off? A. No.

Q. What is that abrasion on the rubber that is in the nipple?

A. I think the stretching, putting it over the nipple, is what flattened it out. It was old fire hose, and flat when I got it.

Q. Now, look again at that—this place, here (indicating)?

A. I think that was from the old, original flattening. It was old fire hose.

Q. Do you not see some fresh abrasions on that pipe, right at the nipple?

A. Yes. That is where I took the hose clamp off.

Q. Why did you take the clamp off?

A. I wanted to use it. I put a new pipe on, and the machine is running today.

Q. What's that?

A. I put a new hose on, and the plant is running.

Q. You wanted to use the clamp for some other purpose?

A. For the same purpose.

Q. What are the old abrasions on there?

A. I don't know. Marks that were in it, I judge, when I got it.

Q. Can you smell anything, when you smell that hose, except the smell of rubber? Can you smell anything like your bleaching gas on it?

A. No. I think it smells like burned rubber.

Q. You are one of the contributors to the defense of this suit?

A. I don't know. I don't handle the financial end of the business.

Q. You were directed to come here by your employer?

A. Yes, sir.

Q. And you are not interested, of course, in this flour that was seized? A. Not at all.

Redirect Examination

By Mr. Scarritt:

Q. Mr. Bullock, how long have you lived in Nebraska?

A. 33 years.

Q. What business have you been in, while you were there?

A. Since I left school, I have been in the milling business.

Q. Ever since you left school? A. Yes, sir.

Q. The same place—Crete, Nebraska?

A. Nearly all the time.

2224 Q. Have you a family there? A. I have.

Q. Ever accused of anything dishonest, or ever been in the penitentiary, or anything of that kind? A. No.

Q. Now, who put this hose on this pipe in exhibit 272?

A. I did.

Q. When did you do it?

A. In 1907, sometime in the summer. I don't know the exact date.

Q. You got the hose, you have said—

A. (Interrupting) From the man who was repairing the fire hose for the city.

Q. Now, has that hose been on that pipe, in the same way, same place, ever since you put it on there, just exactly as it is now? A. Exactly as it is now.

Q. Did you ever, at any time, during those years, cut that hose near the pipe, where it is on the pipe, now? A. No.

Q. Did you, when you took it off the other day? A. No.

Q. Did you, when you put that hose on the pipe as it is now, put the clamp on the hose to hold it on the pipe, as indicated by those marks? A. I did.

Q. Did that clamp remain on that hose during those years, until you took it off the other day? A. It did.

Q. Did you ever take it off, before? A. No.

Q. Now, I understand, when you took it off, the reason you didn't bring that, was because you wanted to use it on the hose that you have just put on there to run your mill? A. Yes.

Q. It is necessary to have it on there, to hold the hose on there? A. Yes.

Q. So that pipe, which is half the hose section, so far as the pipe is concerned, it is in just exactly the same condition as it was when you put it on there, in 1907?

A. So far as composition, it is just exactly the same as it was.

Q. I understood you to say that you installed this mill, yourself. A. I did.

Q. Did you put these pipes up there, yourself?

2225 A. I was present all the time, and did some of the work.

Q. You were overseeing the work? A. Yes, sir.

Q. Taking care of the work, seeing that it was done, and did some of it, yourself? A. Yes.

Q. Now, you have told Mr. Butler that the balance of the hose which was 10 or 11 inches—

Mr. Butler: 5½.

By Mr. Scarritt:

Q. 5½ inches, was dried out? A. Yes.

Q. Was that next to the agitator, or furtherest away from the agitator? A. Furtherest away.

Q. I mean the electrifier.

A. It was next to the electrifier.

Q. And, next to the electrifier, is the warmest place in the pipes isn't it? A. Yes.

Q. And what was the condition of that 8 or 9 inches of pipe, as to brittleness?

A. It was dry and brittle, and broke when we took it off.

Q. Dry and brittle, like this (indicating)?

A. Yes, or possibly worse.

Q. Now, if you would take that off of there, it would break, wouldn't it? A. I am pretty certain it would.

Q. What made it dry and brittle, if you know.

A. The heat. Rubber tires, or belting, or rubber shoes, or anything deteriorates with age, and especially with heat.

Q. And becomes dry with heat, and brittle? A. Yes.

Q. Now, is the pipe marked Exhibit 271 a part of the pipe that you put up when this machine was installed? A. It is.

Q. Has it remained in the same position, and the same place, and the same way, ever since that time, until you took it down the other day? A. It is.

Q. Is the balance of the pipe that remains there in practically the same condition as that pipe, exhibit 271?

- A. It is in good working order. I didn't take it down and examine the threads, but it seems to be as good as this.
- 2226 Q. You did not pick out any special part of it, with reference to its being good or bad, did you?
- A. No. I took the easiest I could get.
- Q. Now, Mr. Butler has asked you about bringing the balance of the pipe down here. You say it is in use? A. It is.
- Q. But, if the Court or Jury desire to see the balance of the pipe, can you stop your mill and bring it down here?
- A. It wouldn't be worth while.
- Q. Or let them go and see it?
- A. I would like to have them go and see it.

The Court: Well, we will not go, so there is no use spending time on that.

Mr. Searritt: I just wanted to let you know that he was willing.

The Court: Those invitations are very kind, but they will not be accepted.

By Mr. Searritt:

Q. Now, I understand you, in answer to Mr. Butler's question, to say that the pipe that has the hole in it, and is worn out by the action of the water, or whatever it is, never had any of this gas in it? A. No.

Q. Never was used for the purpose of conducting gas?

A. No.

Q. And you say to the jury that these pipes are exactly the same pipes that were put in there by you, and remained there ever since? A. Yes.

Q. Until you took them out the other day? A. Yes.

Q. You haven't tampered with them, or cleaned them?

A. Except to shake the dirt out of them. There was a lot of dust in this one.

Q. Or done anything to them, and brought them here, and showed them to the jury, as you have?

A. Just as they were.

Recross Examination

By Mr. Butler:

2227 Q. The piece of rubber that you didn't bring down here was the worst part of this piece of rubber, wasn't it?

A. Yes.

Q. So, you brought down the best part of the rubber?

A. I brought down the only part that was whole; the other part was broke.

Q. You brought down the best piece of rubber? A. Yes.

Q. And you brought down the worst piece of pipe from your heating plant that you could find? A. Yes.

Q. Your steam pipe from that heating apparatus?

A. Yes.

Q. So, in order that the jury might have the benefit of the fair observation of the pipe, you brought down the very best piece of your Alsop rubber, and the very worst piece of your heating plant?

A. To show that the pipe might be pitted through.

Q. Why didn't you bring down the poor rubber, instead of burning it up, if you wanted to let us see what effect your gas has upon rubber?

A. It would have packed badly. It wasn't convenient to pack. It was brittle. It would break all to pieces.

Q. What do you mean by packing?

A. It would have to be gotten down here.

Q. It wasn't any larger than a pair of cuffs, was it?

A. No.

Q. Then, why didn't you bring it down, instead of burning it up?

A. For the reason I have told you. I didn't think it was worth while.

Q. Well, it would show how the rubber was, next to your generator, wouldn't it? A. Yes.

Q. Show better than you could tell, wouldn't it? A. Yes.

Q. Now, wasn't it because it showed so badly, that you didn't bring that down?

A. It wasn't because it was decayed, or rotten, or anything of that sort. It was simply brittle, and broken.

Q. Simply because you couldn't pack it conveniently, was that the reason? A. That was the principal reason.

Q. Now, this room where this thing is, is dry and hot?

A. Yes.

Q. So, there is no condensation in the hose? A. No.

Q. Or in the pipe? A. No.

Q. Now, that's the truth, isn't it?

A. That's the truth.

2228 Q. Generate a great deal of heat at that place, don't you? A. Yes.

Q. A great deal of heat? Did you ever see pipe, such as that one (indicating) leading to an agitator, before?

A. I don't think I ever did.

Q. Was there any reason why you departed from the general Alsop custom, and used a big pipe, and just blew it in?

A. Because I had probably one of the first machines in the state. I have never seen one installed, and didn't know any better.

Q. It is a poor way of doing, isn't it?

A. No, I don't think so.

Q. Best way to do?

A. I have found it satisfactory, so I can't say that it is poor.

Witness excused.

Stella Agnes Hartzell, being called, sworn and examined on behalf of the claimants, testified as follows:

Direct Examination

By Mr. Elliott:

Q. Please give us your full name?

A. Stella Agnes Hartzell.

Q. Where do you reside? A. In Ames, Iowa.

Q. Will you state your education, and training, please?

A. I took my B. S. degree from the university of Nebraska, in 1901. For two years I taught in the high-school, and I then came back to the university, as assistant in chemistry.

Q. Lincoln?

A. At Lincoln, Nebraska. Later I was made instructor in chemistry, in the university of Nebraska, and later I became instructor in agricultural chemistry in the university of Nebraska, and, still later, assistant chemist in the experiment station at the university of Nebraska. In the first of May, 1908, I accepted a position at Ames, Iowa, as assistant chemist in the experiment station, and last December, the head of the department left, and I have been acting head of the experiment station, the chemical section, since that time, and still hold that position.

Q. Have you carried on, during your connection with the experiment station, any investigations on the subjects of flours?

A. I have.

Q. What was the nature of those investigations?

A. First, I studied the composition of flours with Dr. Avery, chancellor of the state university, then I worked on the bleaching of flour, and, later, at the experiment station, I worked on the bread baking of the flours.

Q. What flours did you analyze, in connection with that investigation with Chancellor Avery?

A. I took a large amount of patent flour that was sent from—we obtained it under the direction of Chancellor Avery, who sent a man down to personally supervise obtaining the flour. We obtained both the bleached and the unbleached patent, from Manhattan, Kansas, then, we had another. There was another large amount that I worked on, that was sent from Silver Creek.

The Court: From where?

A. Silver Creek.

By Mr. Elliott:

Q. Where is that?

A. Silver Creek mills, in Nebraska, and that was a straight grade of flour, bleached and unbleached. I also worked on flours which were nine different sets of flours, including the three, patent, straight, and the baker's grade, sent from 9 mills in Nebraska.

Q. Were those nine sets that you speak of, sent by the millers?

A. They were sent to Doctor Alway, and I obtained the samples from him.

Q. But they were sent by the miller to the university?

2230 They were sent in by the millers? A. Yes, sir.

Q. What did you find, Miss Hartzell, in regard to the grading of flours, as expressed by the terms "patent", "straight", and "bakers"?

Mr. Butler: From those samples, you mean?

Mr. Elliott: Yes, samples that were sent in.

Mr. Butler: I will object to that, as immaterial and irrelevant, if those millers sent in some flour for their own purposes, and branded it as they pleased, and called it what they pleased, and bleached it as they pleased, unless there be some showing what the flour was, in fact.

The Court: Make it plain, Mr. Elliott. I don't understand.

Mr. Butler: You can't make any kind of evidence that way.

Mr. Elliott: I simply wanted to bring out from this witness that a certain grade of flour, of one mill—I won't mention any names—a certain flour of one miller might be better than a different grade of flour, or inferior.

The Court: You mean because it is a long or short patent?

Mr. Elliott: Things of that kind.

Mr. Butler: Is there any dispute about that?

Mr. Elliott: I don't know whether there is, or not.

The Court: I will hear the lady. I don't see that it will throw much light on the matter, but it may.

The Witness: From the analyses, the per cents of ash in some of the patent grades corresponded almost exactly with the—

Mr. Butler: (Interrupting) Wait a moment. I think I will object to that as irrelevant and immaterial, hearsay, and self-serving.

The Court: What per cents were these patents, do you know?

The Witness: You mean the per cent of ash?

The Court: Oh, no—per cent of the whole.

The Witness: I haven't figured out the exact per cent.

The Court: Could you tell? If I sent you a sack of flour, could you know what per cent it was?

2231 The Witness: I could determine the percentage of ash.

The Court: I am not talking about ash.

By Mr. Elliott:

Q. Did each one of these millers send in a sample of each grade of his flour? A. Yes.

Mr. Elliott: That was the point.

Mr. Butler: Now, that was manifestly hearsay testimony. They sent in some flour. Now, whether it was each grade, or blended, or mixed, or anything else, how can that be evidence?

The Court: I may misapprehend this whole situation. I don't see how this lady, or anybody else, can tell anything about what per cent of the whole any flour is. I may be mistaken. She was insistent in telling about the ash content, but I had another matter in my mind, but I will see if she can tell what percentage a flour is.

The Witness: Each miller sent in three samples of flour, one he labeled "patent", and one "straight grade" and one "bakers" grade.

The Court: Now then, of the per cent of each, you know nothing, and could not know anything.

Mr. Scarritt: Per cent of what?

The Court: Of the whole. Was it the long, or the short patent, or middle patent, or what.

The Witness: It was simply the three. That was the way he labeled it.

The Court: Was this a 50 per cent patent, or a 70 per cent patent, or a 95 per cent patent?

The Witness: He didn't state.

The Court: You don't know. You couldn't know, could you?

The Witness: No.

Mr. Elliott: I am not trying to bring that out.

Q. The question is what did you find in regard to the grade of the flours, as expressed by the terms "patent", "straight" and "bakers"?

Mr. Butler: We object to that as incompetent, irrelevant and immaterial.

2232 The Court: She may testify. I will see what that leads to.

The Witness: I found, from the results of my analyses, that a patent grade did not always show—

Mr. Butler: (Interrupting) Objected to as giving her conclusion.

Mr. Elliott: The Court said she could go on.

Mr. Butler: Let her tell what percentages she found.

The Court: Go on.

The Witness: I found, in the patent grade, I found the variation—

By Mr. Elliott:

Q. (Interrupting) Finish your answer, please, as you were giving it, and do not pay any attention to Mr. Butler, please, unless the Court tells you to.

Mr. Butler: Just a moment. I want to object to her conclusions, as to what the results indicated. I have no objection to the results.

The Court: This lady seems to have this question of ash on her mind. Let's get through with that question, and then get to something else.

The Witness: I found, from the results of the analysis, that a patent grade of flour was not always a higher grade of flour than a straight grade, according to the names that were sent in by the millers.

By Mr. Elliott:

Q. When was this work done?

A. Mostly during 1906 and 1907.

Q. What was the highest ash content which you found in any one of these patent flours? A. .49 per cent.

Q. And within what limits did the ash content vary?

Mr. Butler: In the patents?

By Mr. Elliott:

Q. In the patents, yes.

2233 A. The ones that I analyzed, were .36 per cent was the lowest, and .49 per cent was the highest.

Q. What work did you do on bleaching flour, anything besides making the chemical analyses?

A. I baked a large number of loaves of bread.

Q. Will you state what differences and similarities you found between the unbleached and the corresponding bleached flour?

Mr. Butler: What do you mean by "corresponding bleached flour"?

Mr. Elliott: Same flour bleached.

The Witness: You mean, in the bread?

By Mr. Elliott:

Q. No, in the flour, or, you may express it in terms of bread, if you will.

Mr. Butler: This artificially bleached you mean, Mr. Elliott?

Mr. Scarritt: Yes.

Mr. Butler: Bleached by her, you mean.

The Court: Bleached in the laboratory, or at the mills?

The Witness: These two samples that I am speaking of, were samples that were overseen, personally, by a man sent down by Chancellor Avery, and they were bleached, one was bleached and the other was not, at the Manhattan, Kansas, mill and the other was bleached at the Silver Creek mill.

Mr. Butler: Of course, that last that you gave is your information? You weren't at Manhattan? You didn't see it bleached at all?

The Witness: I didn't see it, but the man who saw it told me, personally, himself.

Mr. Butler: I move to strike out where it was bleached and how it was bleached, and what the man told her.

The Court: Yes, unless she tested, herself, and knows whether it was bleached or not.

The Witness: I tested it with the Griess test.

2234 By Mr. Elliott:

Q. And found what?

A. Found that one was unbleached, and the other was bleached, just as represented.

The Court: All right. Let it stand.

By Mr. Elliott:

Q. Now, were loaves of bread made from those flours?

A. Yes, sir.

Q. Will you state what differences and similarities, if any, you found between the unbleached and the corresponding bleached flour, after it was made into bread.

Mr. Butler: I object to "corresponding bleached flour".

The Court: Yes, let her state in each.

The Witness: In the case of the bleached flour, the bread was whiter than in the case of the bread from the unbleached flour. In the case of the odor, I could find no difference. The taste, I could find no difference, and the size of the loaf, I could find no more difference than there was between the size of the loaves of the same flours, when baked at the same time.

Q. Have you made many of these bakings, Miss Hartzell, in order to test the loaf volume? A. Yes, sir.

Q. And what is your opinion as to that, as result of all your tests in that regard?

A. I could find that there was no difference between them. Sometimes the bleached loaves would be a little larger than the other, in size, and sometimes the unbleached. The average was practically the same.

Q. Did you test all loaves made from bleached flour, for nitrites? A. Part of them I did.

Q. What was the result of those that you investigated in that regard?

A. In the way that I usually baked the bread, I did not find any nitrites present. In a few of the loaves that I tested, when I made them in a different way, I found some nitrites.

Q. Now, will you describe your method of bread making.

A. I dissolved half a cake of compressed yeast in one-fourth cup of warm water. Then added one-half cup of milk;
2235 one fourth cup of water, and stirred in about $1\frac{1}{2}$ cups of flour, or enough to make a batter. I covered, and put in a warm place, to rise when it was light, I stirred in and mixed the flour—

The Court: Stirred in what?

The Witness: Stirred in the flour.

By Mr. Elliott:

Q. Some more flour?

A. And mixed it, and then kneaded until it would spring back in my hand, which was about 30 minutes, and then put it away until it became light; and, when light, I kneaded it into loaves, and oiled.

The Court: What?

The Witness: Oiled,—covered it with oil, slightly.

The Court: Oil?

The Witness: Yes.

The Court: What kind of oil?

The Witness: This was butter, simply the crust of it. And, when light, baked 45 minutes.

The Court: Gas, or wood stove, or coal stove, or electricity?

The Witness: The stove we used—used the gas burner.

By Mr. Elliott:

Q. Now, what was this other method you spoke of?

A. That was used in the experimenting, at the start, and this last that I had baked, I used this last method.

Q. Now, did you determine the amounts of nitrites present in the two samples of bleached flour you have referred to?

A. Yes, sir.

Q. What were they?

Mr. Butler: That is, from the Manhattan mill?

The Witness: Flour from the Manhattan mill, which was bleached, contained .8 parts per million, and the Silver Creek contained 12 parts per million.

2236 Mr. Butler: 12?

The Witness: Nitrite.

By Mr. Elliott:

Q. Is that reckoned as sodium nitrite? A. Yes.

Q. And, if you put that in terms of nitrogen as nitrite, you would divide that amount by 5, approximately, would you not?

A. I haven't figured that out.

Mr. Butler: That was 8 parts.

The Witness: .8.

Mr. Butler: And 12 whole parts?

The Witness: And the Silver Creek was 12.

By Mr. Elliott:

Q. And calculated as sodium nitrite? A. Yes.

Mr. Butler: 15 times as much in one as the other, I take it?

The Witness: Yes.

By Mr. Elliott:

Q. Did you ever compare any samples of bread made from bleached and unbleached flour, other than those you, yourself, made? A. Yes, sir.

Q. How many samples did you thus examine?

A. I don't know the number. They were arranged on the laboratory table, which is—

Q. (Interrupting) Where was this?

A. In the experiment station at Lincoln, and on the laboratory table, I think, which is probably 10 feet long. I have never measured it.

Q. You say you don't know the number of samples?

A. I didn't count the number; no.

Q. How did you happen to examine those loaves, Miss Hartzell?

A. Doctor Alway was working with them, and he asked me to come in and examine carefully the loaves for taste and odor and smell.

Mr. Elliott: I will produce Doctor Alway, if your Honor please.

2237 By Mr. Elliott:

Q. Now, did you detect differences in taste, and in odor, in respect to these loaves?

A. No, sir. I couldn't find any difference in the taste, or in the odor.

Q. Did you ever bake any bleached flours, besides those of which you have already spoken? A. Yes, sir.

Q. Where?

A. At the same station. I have baked some from some of the mills.

Q. What were the results of these bakings?

A. In what way?

Q. Did Doctor Alway ask you to make any bakings for him? Do you recall?

A. I was making bakings in the experiment station laboratory. I made a great many of them.

Mr. Butler: I will ask that to be stricken out, as not responsive.

By Mr. Elliott:

Q. I asked you if Doctor Alway requested you to make bakings.

Mr. Butler: May that go out, Mr. Elliott?

Mr. Elliott: That may go out.

A. Yes, sir. Doctor Alway asked me to take samples of the flours home and try them at home, and I took these samples home, and baked them into bread, and we used them on the table, at home.

Q. Now, speaking from your own observation, the flour that you took home,—were you able to find anything wrong with the odor or flavor of that bread? A. No, sir.

Q. Have you ever extracted the fat from bleached flour, and unbleached flour? A. Yes, sir.

Q. And have you ever compared the odor of those two flours? A. Yes, sir.

Q. Now, with what result.

A. I could find no difference in odor between the fats, which were extracted from the bleached and unbleached flours.

Q. Now, I will ask you, Miss Hartzell, as result of all of your experiments in connection with bleached flour, and the baking of bread, especially, what is your conclusion or
2238 your opinion as to the effect of bleaching upon the quality of the bread made from the resulting flour?

A. I could find no difference between the bleached and the unbleached, except that, of course, in the case of the bleached, the bleached flour bread was whiter.

Q. I believe you have taken a master's degree, you stated?

A. Yes.

Q. Under whom did you take that degree?

A. Under Doctor Avery.

Q. What was your thesis when you took your degree?

A. The effect of bleaching upon the composition of flour and bread.

Cross-Examination

By Mr. Butler:

Q. That was a master's degree in chemistry? A. Yes, sir.

Q. In these cases where you extracted the fat, and smelled of it, the bleached and unbleached flour samples, how much nitrites were in the flour?

A. I tried it with the Manhattan flour, and it had .8 parts per million, and I tried it with the Silver Creek, and it had 12 parts.

The Court: 12 full parts?

The Witness: Yes, 12 parts.

By Mr. Butler:

Q. Comparing the bleached Manhattan with the bleached Silver Creek, what was the color of the fat, one compared with the other, after it was extracted, or did you destroy the color in extracting it?

A. The color was lighter, in the fat from the bleached flours.

Q. I am comparing two bleached, now, the Manhattan and the Silver Creek, bleached, one bleached .8 parts per million, and the other bleached 12 parts per million, 15 times as hard. Did you compare them? Did you compare bleached against bleached, there? A. I don't remember that I did.

Q. Now, let me see if we can agree about some matters in chemistry. You are familiar with NO₂? A. Yes, sir.

2239 Q. Is it about the color of this, in this bottle, exhibit 51? A. Yes, sir.

Q. Poisonous gas? A. Yes, sir.

Q. Suffocating, corrosive, offensive to taste? A. Yes, sir.

Q. And poison? A. Yes, sir.

Q. Are you familiar with the effect of that, when it comes into contact with water,—what takes place? Nitrous and nitric acid produced in equal molecular parts?

A. I have passed it into water, and that is what takes place.

Q. That is the result? A. Yes, sir.

Q. That is, this gas, with water, forms nitrous acid and nitric acid, doesn't it?

A. That is what we have always taken as the chemical reaction: Yes, sir.

Q. You believe that to be true, don't you? A. Yes, sir.

Q. Nitrous acid, combined with bases, organic or inorganic, forms nitrites, does it not? A. Yes, sir.

Q. Nitrites of various kinds, depending upon the character of the bases? A. Yes, sir.

Q. What's that? A. Yes, sir.

Q. Nitric acid, combining with various bases, forms nitrates?

A. Yes, sir.

Q. That's right, isn't it? A. Yes, sir.

Q. Nitrites are poisonous, are they not.

Mr. Elliott: I object to that, if your Honor please. This lady hasn't qualified as a toxicologist.

The Court: She may answer.

A. I haven't studied any poisons.

By Mr. Butler:

Q. But, generally speaking, you know, do you not, at least as much as ordinary people do, about the calling of various substances poison, or don't you?

Mr. Elliott: I make the same objection, if your Honor please.

The Court: She may answer.

2240 The Witness: I have not studied it, and I prefer not to—

By Mr. Butler:

Q. (Interrupting) Do you know nitric acid is poison?

Mr. Elliott: Same objection.

The Court: She may answer.

The Witness: I haven't studied, or tried it on myself, either.

By Mr. Butler:

Q. Do you know nitric acid is a poison?

A. Nitric acid is said to be a poison.

Q. Popularly known as a poison, at least, isn't it?

A. Yes, sir.

Q. So is nitrous acid?

A. Popularly known to be a poison; I think it is classified in that list.

Q. And the organic nitrites are generally understood to be poisonous in character? A. Not necessarily the nitrite.

Q. How about nitrates?

A. Not necessarily the nitrates.

Q. Not necessarily? Now, let us get the rule, then. Some nitrites poison? A. I haven't studied that.

Q. Then why did you say they were not necessarily poisonous, if you haven't studied it? Now, you can't answer against our contention, and then, when we ask you to answer something for us, say you haven't studied. That would not be fair. Now, you say not necessarily poisonous. If you haven't studied it, you should have answered that.

A. I haven't studied, and I—

Q. (Interrupting) Do you want to withdraw that answer, then?

A. What salts are poison, I mean, I haven't studied poisons, as a study.

Q. Would you like to withdraw your statement, that nitrites are not necessarily poisonous, or are you willing to be cross-examined to defend that statement? Now, you may do whichever you please. If you say you are not qualified on that subject, you may withdraw your answer, and I will not press the inquiry.

A. When I spoke, I was thinking that—I was sure that some of the nitrites were necessarily poisonous; but I will
2241 withdraw it.

Q. Very good. We will drop it, then. Now, do you know of any reason in the world why NO_2 , when it comes in contact with water, will not always form nitric acid?

A. When it comes in contact with water?

Q. Yes. A. It forms both nitrous and nitric.

Q. Always, doesn't it? A. Yes, sir.

Q. Just as certainly as that fan will fall, when I let go of it? A. According to the chemical rules.

Q. Do you know anything about N_2O_3 ?

A. I know there is a compound N_2O_3 .

Q. Bluish liquid?

The Court: Is it a liquid, or gas?

The Witness: It depends upon the temperature, and the pressure.

By Mr. Butler:

Q. Isn't it laid down by the best chemical authorities in the world, that it doesn't exist, only as a liquid, and that it is a mistake to say that NO_2 plus NO is a compound, at all? That it is always a mixture? Isn't that the chemistry of that?

A. I didn't understand.

Q. Isn't that the chemistry of the situation? Hasn't it been well established by well-known authorities, the greatest gas men in the world, that NO_2 and NO is a mixture, and not a compound, and that by passing it through caustic soda, you get nitrites and nitrates, and NO cuts off free, which shows it is a mixture, and not a compound?

A. As a rule, when nitric acid decomposes, you have those separated.

Q. Well, I am not speaking of nitric acid.

A. Well, you have NO_2 formed, and NO .

Q. Well, hasn't it been very well established about that, that in case of complete chemical union of two parts equal in volume, the volume of the compound will be the same as that of each? We will call that (indicating) NO_2 , and this (indicating) NO . Or do you know about that? Do you know
2242 that, as a matter of chemistry, if you combine equal volume of NO_2 and NO , that the mixture will be as large as both? A. I have studied some of that.

Q. Now, you know, if there is chemical combination, and it is complete, that the mixture will only be as large as one, don't you?

A. That it combines under the same conditions of temperature, and pressure, according to the different portions.

Q. Combines only the size of each part, then, isn't that all? Whereas, if it is mixture, it is larger? Isn't that the law? Isn't that well-known? Or don't you know anything about that?

A. Well, that depends upon—you are taking into consideration the volumes?

Q. That is what I am speaking of. A. Yes, the volumes.

Q. This volume represents NO, this NO₂. If they combine completely, it is just the same size as one?

A. If you take one volume of hydrogen, and one of chlorine, you would get only one volume of hydrochloric acid.

Q. That is the same with NO and NO₂, isn't it?

A. Same principle; yes.

Q. Same principle, exactly? But, when you put the oxygen and nitrogen in the air, they do not combine, do they?

A. No, sir.

Q. They are a mixture? A. Yes, sir.

Q. And the volume of both remains? A. Yes, sir.

Q. Well, now, don't you know that it is well understood that, when NO and NO₂ come together, the volume of both remains? Don't you know that is well understood by chemists, whereas, if it was a compound, the compound would only be the size of one? Are you familiar with that, Miss Hartzell?

A. You say that, if you bring a volume of NO₂ to a volume of NO, together, that you still have the volume of NO₂ and still the volume of NO?

Q. Yes. That is well understood, isn't it?

A. I think so.

Q. That shows they are not a compound, don't it, because, if they were a compound, you would only have the volume of one?

A. Shows what?

Q. Shows that it is a mixture, instead of a compound?

A. You mean the NO and the NO₂?

2243 Q: Yes. That is a mixture, isn't it, and not a compound? A. I suppose so.

Q. Well, I mean, a mixture of NO and NO₂. You may call each a compound, but it is a mixture of these two substances? A. Yes, sir.

Q. Now, let us speak of the bread. What was the ash in your straight flour, about which Mr. Elliott asked you what the range was? A. That was the patent.

Q. Yes, and you told him .36 and .49, minimum and maximum. Now, I would like to get the minimum and maximum in the straight.

A. I didn't bring my figures with me. I don't remember.

Q. Well, give it, approximately. I will not ask you to be accurate. I don't care very much, but was it higher or lower than the patent?

A. It was higher than the patent. It was, taking the average, higher than the patent.

Q. And of your clear?

A. That was still higher than the average of the straight.

Q. What was the lowest of your clear?

A. I didn't bring my figures with me.

Q. Well, I will remind you in this case, or tell you that the flour in this case had .57 ash. You found clears lower than that, didn't you? A. Yes, sir.

Q. So that this flour that is seized, so far as the ash is concerned, has more ash than some of the clears you found?

A. I remember one that was .6 of the baker's. .6 per-cent.

Q. Was that the lowest? A. I can't state, positively.

Q. And did you bring your patent figures? A. Yes, sir.

Q. Why didn't you bring the others, too?

A. Because I was asked to bring simply the patent.

Q. Who asked that? A. Doctor Alway.

Q. Did he say simply the patent?

A. No. He didn't. He didn't specify, except that he said he would like to have me bring the patent.

2244 Q. Did you make these ash determinations for Doctor Alway? A. No, sir.

Q. When were these made?

A. These were made in 1906.

Q. When were these baking tests made?

A. In the summer and fall of 1907.

Q. And the tasting tests made? A. And the what?

Q. Tasting tests on that whole row of bread that you tasted, —on the ten-foot table, I understood.

A. I can't state definitely whether that was the spring of 1908 or the fall of 1907.

Redirect Examination

By Mr. Elliott:

Q. Doctor Alway didn't tell you not to bring any ash determinations?

A. No. He simply asked me to bring the patent, and I didn't know you wished any others.

Witness Excused.

The Court: The Court desires, at this time to remind counsel of the direction before we entered upon this trial, as to the number of witnesses that would be allowed upon given questions.

Mr. Butler: There have been 20 millers or more called by the defense.

The Court: I have told counsel on both sides, before this trial began, the number of witnesses, scientists and others

which would be called upon given questions, and I simply desire to call the attention of counsel, now, to what was said, and I think a record will be necessary, if counsel do not recall what was said in my room. Call your next witness.

Mr. Scarritt: I don't recall, your Honor.

The Court: I do.

2245 Mr. Scarritt: You limited the number of witnesses?

The Court: Yes, sir.

Mr. Scarritt: That was spoken of, but no understanding that I know of.

The Court: Very well. Counsel will recollect. Not only that, but the general, uniform law all over the United States, so far as I am familiar with courts.

Frederick James Alway was then called to the witness stand and sworn as a witness on behalf of the claimants.

The Court: On what subject is this witness called?

Mr. Elliott: He is a chemist.

The Court: Well, keep in mind what I said a moment ago.

Mr. Elliott: If your Honor please, I hadn't heard of that, before?

The Court: I stated distinctly to you gentlemen, on both sides, that the uniform rule prevailing in the Courts all over the country, would be enforced in this case, to-wit, from 5 to 7 witnesses upon a given subject, or a given line, and so on. This case would run into a question of who can call the most witnesses. Now then, you gentlemen know how many scientists you have called. You are taking your chances, now, on every one you call, unless you call those you prefer above others, like-wise millers, and upon other subjects.

Mr. Scarritt: How many have we had?

The Court: I haven't checked up. I am going to have it checked up this evening. This case is going to come to an end, if my health will hold out for a very short time.

Recess was then taken for five minutes, after which

2246 Frederick James Alway having been called and sworn as a witness on behalf of claimants, was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. State your full name, please?

A. Frederick James Alway.

Q. Where do you reside? A. Lincoln, Nebraska.

Q. What is your profession or occupation?

A. I am a chemist.

Q. And what is your present occupation?

A. I am chemist of the Nebraska experiment station, and professor of agricultural chemistry in the University of Nebraska.

Q. What have been your education and experience?

A. I attended the University of Toronto, in Canada, where I obtained the degree of Bachelor of Arts, in '94. Then I went to the University of Heidelberg, in Germany, where I obtained the degree of Doctor of Philosophy in 1897. From 1896 to 1906, I was professor of chemistry in the Nebraska Wesleyan university, and from 1906 on, I have been at the University of Nebraska, as chemist at the experiment station, and professor of agricultural chemistry.

Q. Are you a member of any of these scientific societies?

A. I am a member of the American Chemical society, and the German chemical society.

Q. Have you done any research work, and issued any publications along the lines of chemistry?

A. I have been carrying on investigations for the past ten years or more, and published a large number of articles in American and German medical magazines.

Q. Are you an organic chemist?

A. When I was in the Nebraska Wesleyan university, I worked chiefly on organic chemistry. Since that time I have not worked on that subject.

Q. Will you define what organic chemistry is?

A. Organic chemistry is that branch of chemistry which deals with the compounds of carbon and hydrogen, as distinguished from the limited number of compounds which contain neither.

2247 Q. I wish you would distinguish between the compounds which are called "organic", and those which are not called "organic".

A. Those that contain both carbon and hydrogen are regarded as organic compounds. Those that do not, are considered as inorganic compounds.

Q. Now, what part of organic chemistry have you worked with, chiefly?

A. In my investigations, I have confined myself chiefly to nitro compounds, nitroso compounds, diazo compounds, and related compounds.

Q. Have you ever discovered any of the compounds?

A. In speaking of preparing new compounds, we do not use the term "discover". We say "prepare".

Q. Have you prepared any compounds?

A. I have prepared a considerable number of compounds which were unknown, before. How many, I don't know. One hundred, or thereabouts.

Q. Are you familiar with nitric acid? A. I am.

Q. How does nitric acid act upon organic compounds?

A. That depends entirely upon the conditions, upon concentration, temperature, and other conditions.

Q. Would you please explain just what you mean by "depending upon the concentration of the nitric acid?"

A. That means how much water is mixed with it. Nitric acid, when pure, would have 100 per cent of nitric acid, without water, and it might be diluted indefinitely down to a minute fraction of one per cent.

Q. Now, I understood one of the Government chemists to state that dilute nitric acid acts upon benzin, even when the nitric acid is extremely dilute. My recollection is he said even down to a molecule, but, at any rate, extremely dilute, and he referred to Beilstein as an authority. I would like to ask your opinion as to this?

Objected to for the reason it is incompetent, irrelevant and immaterial.

Question withdrawn.

Q. Did your answer apply to the general proposition
2248 of formation? A. The general proposition.

Q. What is your opinion as to the possibility of the formation of nitro compounds by dilute nitric acid?

A. Well, the point at which they will not form will depend upon the compound that is being treated, and upon the dilution of the nitric acid. It will depend entirely upon the nature of the compound that is being treated with the nitric acid, and upon the concentration of the nitric acid. I could give an example, to illustrate that, if you wish?

Q. Well, you may give an example.

A. When benzin is treated with concentrated nitric acid, it gives—

Mr. Butler: (Interrupting) Just wait a moment. We object to that as the witness' method of putting in excluded evidence, and a volunteer answer. The question was withdrawn about the benzin, by counsel.

Mr. Elliott: Because it referred to specific testimony. Now, I am asking him to give an illustration of it.

The Court: Go on, and give it with reference to bleached flour. I don't see that these general lectures upon subjects of chemistry, foreign to these matters, can be of much use in this case.

By Mr. Elliott:

Q. You can proceed with your illustration, the Court says.

A. Dilute nitric acid, under 20 per cent, forms no nitro benzin. Forms no nitro compound with benzin.

Mr. Butler: I move to strike out the testimony relating to benzin, as not in any way touching any issue of the trial, here.

The Court: Motion is sustained.

Mr. Scarritt: To which we except.

By Mr. Elliott:

Q. Assuming that the nitrogen peroxide acts upon the moisture in the flour, to form nitric acid, and nitrous acid, what would be the concentration of the nitric acid that would be produced from the gas of the Alsop process, as indicated by this flour that was seized in this suit?

A. Applying the investigations I made previously, I would say about 1-80th of one per cent of nitric acid.

Q. Do you know, Doctor Alway, of any nitro compound produced by the action of nitric acid of such concentration, acting upon organic compounds? A. I do not.

Q. I will ask you if, in your opinion, any nitro compounds would be formed by the action of nitric acid of this strength upon flour? A. I do not think so.

Q. What is meant by "dilute nitric acid", where the term is used in reference to the preparation of organic compounds?

A. Oh, from 25 per cent down,—25 to 15, possibly 12.

Q. In speaking of the preparation of nitro compounds by the action of nitric acid, would 15 per cent nitric acid be considered dilute?

A. Very dilute, under those circumstances.

Q. What is the color, Doctor Alway, of the nitro compounds, in general? A. Yellow.

Q. When the gaseous mixture which does the bleaching comes into contact with the flour, what chemical changes are produced in the flour?

A. The coloring matter is changed in some manner so that it disappears, and we find nitrite reacting material in the flour.

Q. I will ask you, Doctor Alway, if, in your judgment, nitric acid is formed by the action of the gas of the Alsop machine, on flour?

A. I have always assumed it is.

Q. Do you know whether any nitrates are left in the flour after the treatment with the gas?

A. I do not. I have investigated that at great length, in the hope of identifying—

Mr. Butler: (Interrupting) I move to strike out his hopes, as irrelevant and immaterial.

The Court: The answer may stand.

By Mr. Elliott:

Q. Leave out your hopes.

A. But I have never succeeded in isolating it, or proving that they were there, but I have always assumed that they are there.

Q. Do you know whether there is any nitric acid left in the flour from the bleaching process?

A. So far as my investigations have gone, nitric acid,—free nitric acid is absent in the flour, after it has been bleached.

Q. Is your opinion based upon experimental fact, or not?

A. It is based upon experimental fact.

Q. Describe what experiments you have made showing this.

A. I have taken flour,—some of the flour in question here that has been seized, extracted it with water, and tested that watery extract with an indicator which would reveal the presence of free mineral acid,—strong—such as nitric acid, sulphuric acid, and hydrochloric acid—and the indicator showed the absence of any free, strong acid, and not only was no acid indicated by this indicator, but it was necessary, in order to get any evidence of free mineral acid, to add still more acid. I used two indicators, one, dimethyl-amido-azo-benzol, and one called Tropper's reagent, which, when mixed with water, gives this color.

Mr. Elliott: (Referring to a bottle) Let us label this as an exhibit.

Marked by the Reporter Claimant's Exhibit 274.

The Court: What color do you call that?

The Witness: A light yellow.

By Mr. Elliott:

Q. Now, just state what claimant's exhibit 274 is?

A. This is one drop of the reagent solution.

The Court: The Griess reagent?

The Witness: Dissolving one drop of dimethyl-amido-azo-benzol in 200 grams of alcohol, and I placed one drop of that reagent in here with 100 c.c. of distilled water. Here is the same thing, to which I have added one cubic centimeter of decinormal acid, which is creating this coloration. That is evidence of free mineral acid being present.

Mr. Butler: How much nitric acid?

The Witness: One cubic centimeter of decinormal—
 2251 one-tenth, and 6.3 grams in 1,000 cubic centimeters.
 Claimants exhibit 276 is an extract from 10 grams of
 flour. 25 grams of flour were treated with 250 c.c. water,
 and allowed to stand for an hour, filtered, and 100 c.c., and
 here we have the extract from 10 grams of flour.

Mr. Butler: What flour?

The Witness: The flour in question.

By Mr. Elliott:

Q. That is just an extract from flour? A. Yes.

Q. Now, tell me what exhibit 277 is.

A. Exhibit 277 contains the same amount of the reagent and
 of nitric acid as there is in 275, but to it I have added the
 same amount of extract as is contained in 276, the extract from
 ten grams of flour. The color, which would indicate the pres-
 ence of free nitric acid, disappeared on adding the flour ex-
 tract, showing that no free nitric acid is present in that ex-
 tract, and, accordingly, not in the flour.

Q. Now, as I pass these to the jury, I want you to tell
 again what they are. This one?

A. That is one drop of Troepper's solution in 100 cubic
 centimeters of water.

Q. Purports to indicate the presence of nitric acid and
 free mineral acid? A. Yes.

Mr. Butler: That is, free nitric acid—nitric acid as such?

The Witness: Yes, sir.

By Mr. Elliott:

Q. Now, exhibit 275 is what?

A. The same as the preceding exhibit, 274, with 1 cubic
 centimeter of decinormal nitric acid added to it.

Q. Now, exhibit 276 is what?

A. The extract, in water, from 10 grams of the bleached
 flour in question.

Mr. Butler: May I ask, Mr. Elliott, what water was this?

What kind of water?

2252 The Witness: Distilled water.

Mr. Butler: How much?

The Witness: 100 cubic centimeters.

Mr. Butler: In each instance?

The Witness: Yes.

By Mr. Elliott:

Q. Exhibit 277 is what?

A. It is the same as exhibit 275, to which has been added 276, except the 100 cubic centimeters of distilled water was kept out.

Q. Well, we cannot follow these numbers. Just tell me.

A. It is one drop of Troepper's reagent, to which was added one cubic centimeter tense normal nitric acid, and then to that was added the extract from ten grams of flour, in 100 cubic centimeters of distilled water.

Q. Now, as I understand this exhibit, it does not show the reaction?

A. Gives no indication of the presence of free mineral acid,—free nitric acid.

Mr. Butler: In the flour?

The Witness: In the extract in the flour.

By Mr. Elliott:

Q. Have you tried spraying unbleached flour with nitric acid? A. I have.

Q. You may state what you did, and what you found?

A. May I refer to my notes?

Q. Yes.

A. On June 18, I carried out 8 experiments with 500 gram portions of flour in each case. The flour was placed in a large flask,—three-liter flask,—and, while it was being vigorously shaken, nitric acid, or water, or a mixture of the two, was introduced from an atomizer made of hardened rubber, introduced slowly, the flour being violently shaken. As soon as the shaking was over, which lasted about two minutes, the flour was transferred to a large beaker, and a thermometer placed in the beaker, down about the center of the flour.
2253 The temperature invariably rose, and the thermometer was left there, and watched, until the temperature stopped rising. Then the flour was tested with the Griess solution for nitrites, or nitrite reacting material, and the next day,—after 18 to 36 hours,—36 hours in one case, it was tested again with the Griess solution, and on that occasion it was compared for color in the ordinary method of slicking it, and comparing with the original unbleached flour.

Q. With what result?

A. In no case did I find any bleaching effect. In no case did I find—in no case except one did I find any evidence of nitrites, and in that one it was only nitrites far too small to measure, and I would not be positive it was evidence of nitrites. In all cases there was a rise of temperature. The

thermometer rose, on June 18th,—varied from $1\frac{1}{2}$ —from 1 to 2 degrees centigrade. I repeated a similiar series of experiments, on June 25, using the different flour. In all cases I used 500 grams; in each case, at the rate of 40 cubic centimeters of distilled water per kilogram of flour. The rise of temperature was 2.8 degrees centigrade, and then I used 20 cubic centimeters tense normal nitric acid, without any water being added to this dilute nitric acid. The rise in temperature was 3.3 degrees centigrade. The third experiment, 6 cubic centimeters, 2 per cent dilute nitric acid, without further dilution, the rise in temperature was 1.3, and the fourth experiment, 6 cubic centimeters 4 per cent nitric acid, without further dilution, and the rise in temperature was 1.3 again; and in no case did I find nitrites immediately after treating or on the following day; and, after standing 36 hours, I found no evidence of bleaching, in comparing with the original sample.

Q. Could you detect any fumes of nitrogen peroxide at the time of spraying? A. I could not.

Q. Have you sprayed flour with water, alone?

A. Three of the experiments which I just gave.

Q. You referred to those? A. Yes.

Q. You sprayed flour with water alone, did you?

A. In four experiments I sprayed with water alone—
2254 distilled water.

Q. You got a rise in temperature? A. Yes, sir.

Mr. Butler: But no nitrites?

The Witness: No nitrites.

By Mr. Elliott:

Q. I will ask you if, in your judgment a rise of temperature is a proof of chemical action?

A. It is not a proof of chemical action.

Q. Have you ever seen some experiments tried with other substances.

A. Yes. I have seen them tried with soil—on the bog soil, when it is moistened with distilled water.

Mr. Butler: I will object to soils.

The Court: I don't know what that has got to do with this. Go on with this witness, please.

The Witness: When a bog soil is—

Mr. Butler: (Interrupting) I am going to object to experiments on bog soil.

The Court: Objection sustained.

By Mr. Elliott:

Q. Is there a name, Doctor Alway, that is given to this rise in Temperature without chemical action?

A. In the case of soils there is a term in use, in Germany, during the past few years, but I don't know whether we have an equivalent for it in the English language, or not. It is "benetzungswarme" in German.

Q. Have you examined any considerable number of commercially bleached flours?

A. I have examined a large number.

Q. Have you examined them, as to increase in acidity?

A. I tested them all for increase in acidity, having samples of the corresponding bleached flours.

Q. What have you found, as a result of your investigations, as to whether there is any increase in the acidity of flour,—of flour that has been commercially bleached?

A. No increase in the acidity in the case of commercially bleached flours that I have examined.

2255 Q. Have you ever extracted the fat from bleached flours, and examined its odor, to see if there was any rancidity, and with what result? What did you conclude?

A. That there was no increase in the rancidity of the odor. No change that I could detect in the odor, caused by the bleaching.

Q. What is your conclusion, Doctor Alway, if any, from the results of your experiments showing there is no increase in the acidity of flour?

A. I don't know just what you mean by that. It is rather comprehensive.

Q. You have testified you made experiments showing that there was no increase in the acidity of bleached flours?

A. Yes.

Q. Now, as dealing with any of the compounds in flour, or acids, and the like, did you come to any conclusion with respect to flour?

A. I came to the conclusion that there had been no hydrolysis; that is to say, no breaking up of the fats in the flour into glycerin and forming oleic, palmitic and stearic, and no oxidation of the oleic acid to the acids of simpler form, such as those that occur in the butter from cow's milk.

Q. What do you say as to whether the nitric acid, which is assumed to be present in the bleached flour, would act on the starch?

A. The nitric acid, in the form of salts, would have no action, whatever, and nitric acid, in the concentration which we would have it in the bleached flours, would have no action on the starch, unless it were possible to break it up into sugar.

Q. What would you say as to the possibility, assuming that nitric acid in this concentration you have indicated is present in bleached flour,—what would you say as to the possibility of its acting upon the starch, to form nitro starch, which could then act upon the gluten?

A. I would not care to say as to the possibility, because we can never predict that; but I would say there was no probability, at all, of its acting upon the flour to form nitro starch.

Q. That is, nitric acid?

A. Nitric acid of that concentration.

Q. Will you explain why you think that?

A. The nitro starches are comparatively well known
2256 but they are all those that are known by the action of strong nitric acid and fuming sulphuric acid of Nordhausen—concentrated nitric acid and concentrated sulphuric acid on starch.

Q. Now, in the light of your last statement, I will ask you if you consider it in the least probable that any nitro starch could be formed in the flour, or in the bread? A. I do not.

Q. Will you tell us what amino compounds are, Doctor Always?

A. Amino compounds are those containing nitrogen and hydrogen, the hydrogen uniting to the nitrogen, and the nitrogen united with the carbon. It is pretty hard to explain that, without using the blackboard.

Q. Well, we will accept your general statement, I believe. Tell us what these amino compounds are, again. I did not hear your answer.

A. The amino compounds are compounds of carbon, nitrogen and hydrogen, in which the hydrogen—some of the hydrogen is united to the nitrogen, and the nitrogen to the carbon. When we write their formula, we always show, at one side, NH_2 .

Q. Now, if you want to illustrate that, you may use this pad (handing the witness a pad).

A. This would be an amino compound, NH_2 , joined onto the C, or carbon, whatever else we might have attached to the carbon, and as soon as we add the NH_2 , attached to it, we would have an amino compound, sometimes called amido.

Q. Doctor, do the lower acids, when treated with nitric acid, form nitroso and diazo compounds?

A. They do not.

Q. What is meant by the "aromatic amino group"?

A. The aromatic amino group is one in which the amino group is attached to a carbon atom—that is, one on a ring. Usually this carbon atom, being arranged in a ring and the ilovitic (?) which imparts the other carbon atom, so the carbon atoms are joined up in chains.

Q. Now, do any of the amino acids obtained from flour and other food stuffs have the aromatic amino group?

A. None of them do.

Q. I will ask you, what relation does that statement have, if any, to the formation of these compounds, diazo and nitroso compounds?

A. Where we have the aromatic amino group, nitrous acid form diazo compounds, and the diazo compounds are
2257 sometimes looked upon as rearranging themselves into nitroso compounds, but never change in formula; simply a change in properties, and the change in formula, we write it out on a large scale.

Q. Does that mean that if this aromatic amino group is not in any of these food stuffs, you could not have a diazo compound?

Q. You wouldn't get it from the amino acids.

Q. From the amino acids? Will nitrous acid, then if present, act upon amino acids?

A. Very readily, I would except; in ordinary concentrations it acts with extreme readiness upon the amino group.

Q. Now, assuming it possible that nitric acid were present in bleached flour; and further assuming it were able to change some of the gluten into amino acids, as I understood it to be testified here, and assuming there were nitrous acid present in sufficient concentration to act upon the amino acids, tell us what you would [except] to take place?

A. I would expect the amino acids to change over into oxy acids. Below here (indicating), I have written HONO , nitrous acid. When the amino is brought in contact with the free nitrous acid, this hydrogen and oxygen would unite to form water; the nitrogen from the amino compounds and the nitrite nitrogen would unite to form nitrogen gas, escaping into the air, and we would have OH more in place of the amino and NH_2 group.

Q. Now, I will ask you, Prof. Alway, what is the action of nitrous acid upon gluten, and upon other proteins?

A. When nitrous acid, in sufficient concentration, or concentrations that we ordinarily employ, is brought in contact with gluten, nitrogen escapes into the air, and it is assumed that the amino groups in the gluten are changed into oxy groups—oxy, or hydroxy groups.

Q. Did you make any baking experiments with this flour that has been seized?

A. I had a baker bake it for me in his own oven, along with his commercial product.

Q. Did you test that bread for nitrites?

A. I tested that. I took both bleached—

2258 The Court: (Interrupting) He asked if you tested it. Yes or no?

The Witness: Yes, I did.

By Mr. Elliott:

Q. What did you find? A. No nitrites.

Q. I will ask you, Doctor Alway, if you have tested, made ash determinations out of sacks of flour that was seized in this case? A. I have.

Q. What have you found?

A. In one I found .62. In one I found .45. In another .53. In each of two others, .50, and in still another, which I did not get in the form of a sack, but was given me by a man who had received it in that form, I found .45.

Mr. Butler: What man?

The Witness: Sent me by Prof. Snyder, from St. Paul.

By Mr. Elliott:

Q. Did you make a determination of the ash of different streams from the Lexington mill?

Mr. Butler: When?

By Mr. Elliott:

Q. Just answer the question. A. I did.

Q. When did you do that?

A. Sometime since the first of June.

Q. And what did you find?

Mr. Butler: Objected to as irrelevant and immaterial, and no foundation laid. The Lexington mill can't fix up streams, and tell us nothing about them, and ask Prof. Alway what he found in the streams while the law-suit is going on.

The Court: He may answer.

A. I made eleven analyses. I found, from the second break, .53; the third break, .64; coarse sizing, .43; fine sizing, .40; No. 1 tailings, .80; No. 1 middlings, .48; No. 2 middlings, .46; No. 3 middlings, .37; No. 4 middlings, .40; No. 5 middlings, .55; No. 6 middlings, 50.

2259

Cross-Examination

By Mr. Butler:

Q. You are strongly in favor of employing NO₂ to bleach flour, are you not? A. I am not.

Q. Sir? A. I am not strongly in favor of employing NO₂.

Q. Haven't you said that it must be,—“if bleaching be permitted at all, it must be confined to NO₂; that it must either be prohibited, or NO₂ alone allowed?”

A. I made a statement, that came to that with a long modifying explanation.

Q. Well, we will get into that later. You have been conducting the scientific end of the defense in this case, haven't you? A. I have not.

Q. You have been aiding in it?

A. I was sent here by the university regents, as an advisor, in case I were needed.

Q. Would you advise the law makers of the state of Nebraska, and the Board of Regents of the University of Nebraska, that you do know that NO₂ is a harmless bleaching agent, and ought to be employed to bleach flour?

A. Read the question, please.

(Last question read by the reporter.)

A. I would not offer any advice that way, especially without any more modifying conditions than that; unless I was permitted to give a modification.

Mr. Butler: I move to strike out the answer.

The Court: The answer is stricken out.

The Witness: Will you read the question?

(Last question read again by the reporter.)

A. I would not advise them that I know.

Q. You do not know, then?

A. I am not a toxicologist or a physiological chemist.

Q. Isn't it through your influence, and advice, and direction, that that state has put in the statutes, that NO₂ may be used to bleach flour? Aren't you the man responsible for that?

A. Not unless it is drawn from my bulletin on the subject; I offered no advice to the law makers.

2260 Q. But you published your bulletin, and sent it to them?

A. I published the bulletin in October, 1907, and send it to them. I sent it all over the state. I did not send it to the law makers.

Q. Now, with respect to the effect upon absorption, what effect has bleaching upon absorption?

A. I was unable to find that it had any effect.

Q. You found it did have one, didn't you, and that was, in one case out of four, that it was favorable to unbleached, did you not, and so reported in your bulletin, Page 43?

A. Yes, it is so reported here. The difference was less than the experimental error in that case.

Q. At the hearing at Washington, did you not state, in respect to acidity. "In nearly all cases I found there was no difference in acidity"? A. Yes.

Q. "In a few cases, I found there was a great difference"?

Q. Yes.

Q. "Where I took a sample of unbleached flour, and treated it with increased quantities of the bleaching agent, I found that, up to a certain point, there was no increase in the acidity, but a certain point came where it did increase the acidity and, from that point on, increasing the amount steadily increased the acidity, with slight fluctuations". Did you so state?

A. I believe I did.

Q. Is it the truth? A. That is my opinion.

Q. Now, have you your bulletin there?

A. I have it right here.

Q. Look at page 40 and 41. A. I have it.

Q. That shows your table of acidity, does it?

A. It does.

Q. Now, you only carried out your decimals to two places. Isn't that all? A. To two places, yes.

Q. But, if you begin at the top, and go to the bottom, and take the average, it would show increase from the beginning, wouldn't it?

A. We cannot be referring to the same table. Page 41?

Q. Yes. What would be the effect, if you had extended it to three decimals? Wouldn't it have shown increase, at ten Cc., at twenty, at thirty, at fifty, at seventy-five, and so on?

2261 A. You are referring to Table 9 on Page 43?

Q. Yes. A. Yes.

Q. If you had extended it to three decimals, it would have shown an increase?

A. I have no knowledge that it would. I have no reason to think it would.

Q. Why not? It is so delicate and small, that, if you took short steps, you cannot measure the steps. Isn't that true?

A. That is true.

Q. And if you haven't in any place where you have shown increases, taken as short steps as you did this? You took steps by ten,—ten, twenty, thirty, fifty, sixty; then, twenty-five, and one hundred, and because you find it where the step is one hundred, and can measure it, you say it does not take place at all at the beginning? Is that it?

A. There is no evidence of it taking place.

Q. No evidence that it does not either, is there?

A. No evidence that it does not.

Q. So, it shows, if it shows anything, that you cannot measure it? A. Yes.

Q. So, it is not scientific, and exact to say that that sort of work proves there is no increase in acidity, is it?

A. That there is no increase in acidity shown.

Q. Did you slip in "shown", to mislead somebody? It is not demonstrated that there is no increase in acidity, is it?

A. No, it is put in to make it scientifically correct.

Q. Yes? It is a negative result, isn't it?

A. It is a negative result, yes.

Q. And a negative result, in chemistry, is valueless, in the face of a positive result, is it not?

A. Well, that depends upon the nature of the positive result, if it is on the same basis.

Q. I mean the same basis, of course.

A. Of course, if it is on the same basis, yes.

Q. The positive result on milk, would not disprove a negative result on water, but a positive result on water, under like conditions, would make a negative result on water worthless, wouldn't it, under the same conditions?

2262 A. That would depend upon who obtained the two different results.

By the Court:

Q. The same man. A. The same man.

By Mr. Butler:

Q. The same man. A. Throw the whole thing out.

Q. So, then, if you were examining a stomach for poison, and you looked as carefully as you could, and did not find any, and then you looked again and did find it, there is no proof of any poison in the stomach?

A. If you isolate the poison—get a positive proof of it?

Q. There is a positive result that would make a million negative results worthless, isn't there? A. Yes.

Q. That is the way they hang people, sometimes, isn't it?

A. Certainly. That is correct.

Q. It is just exactly comparable to the fellow who saw the man steal the sheep. His testimony is worth the testimony of a thousand men who did not see it, isn't it?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

The Court: Objection sustained.

A. Yes.

By Mr. Butler:

Q. Now, you think it is nonsense, do you not, to speak of this bleaching of the flour, by means of this gas, as "aerating", or "aging," or "purifying"? A. Will you read the question?

(Last question read by the reporter.)

A. I do.

Q. You do not believe that this Alsop process adds any age to flour, do you? A. I do not.

Q. You do not believe that this Alsop process does any aging to flour, do you? A. I do not.

Q. You do not believe it does any purifying of flour, do you?

A. I do not.

2263 Q. You have studied it, too, haven't you? A. Some.

Q. You do not believe that it is the equivalent of aerating, either, do you?

A. I don't know. I formerly believed it was not.

Q. Did you cause to be published, as late as the 1st of March, 1908, in the American Miller, a statement containing this language: "It is nonsense to speak of bleaching flour by means of nitrogen peroxide as aerating, aging, or purifying." Did you not?

A. I did not cause anything to be published there, but it sounds like a speech I made, yes.

Q. You made a speech, didn't you?

A. I made a speech about that time, about that effect.

Q. And believed it to be true, didn't you? A. Certainly.

Q. Still do, don't you?

A. I have had some doubts on one point, since.

Q. About the aerating? A. Yes.

Q. Have you got around, on the aging, yet, or do you still think that nonsense? A. Never gave that any consideration.

Q. So, you still think it is nonsense to claim that this bleaching artificially ages flour, don't you? Still think it is nonsense and humbug? A. I stand by that statement exactly.

Q. In your bulletin, you published that the maximum effect of bleaching, in substance, at Page 102, is obtained with one hundred to one hundred and fifty cubic centimeters per kilo of flour. "Excess of this amount gives disagreeable odor, and makes the flour more objectionable for bread, as the amount increases." Did you so state? A. I believe I so stated.

Q. And so believed? A. I certainly believed it.

Q. What do you think the active agent in bleaching is?

A. At the present time I have no idea what it is, whether it is nitrogen peroxide, or whether that forms over into one of the other oxides of nitrogen.

Q. Did you used to have views about it?

A. I assumed there wasn't any question but what it was nitrogen peroxide.

Q. Have they talked you out of that, yet?

A. Nobody has talked to me on the subject.

2264 Q. You still believe it is nitrogen peroxide gas, don't you? A. That is my working hypothesis.

Q. And you still believe it, or you would not work on that hypothesis, to pursue the truth, because, if you started on a false hypothesis, your conclusions would be wrong?

A. When I use any hypothesis, I do not believe it. I use it to work on, the same as I do not believe in atoms.

Q. You do not believe, then, the hypothesis you have been working on in all your investigations in this case?

A. I say I do not put it down as a matter of belief. It is a working hypothesis.

Q. You spend many, many weary months, and long days, and long nights, studying bleached flour, have you not?

A. Yes.

Q. Been one of the chief works of your life?

A. No, not by any means.

Q. A very important one?

A. It took quite a bit of time.

Q. Your working hypothesis was, that the bleaching agent was NO₂ gas? A. Exactly.

Q. You were pursuing the truth indifferently, patiently, doggedly, honestly, weren't you, trying to find out the truth?

A. Yes.

Q. You know, do you not, that, if you work upon a false hypothesis that is important to your conclusions, that your conclusions cannot lead you to the truth?

A. Oh, no, that is not the case. You may work on a false hypothesis, and arrive at the truth. A great majority of the hypotheses are false, although they do lead to the truth.

Q. Then, did you assume this was a false hypothesis, or a true hypothesis?

A. I assumed it was a true hypothesis. I assumed it to be the correct explanation of the action, until I went to Washington, and heard Dr. Dunlap.

Q. He changed your mind, did he?

A. He opened my mind to doubt as to the correctness of my former assumption of the facts.

Q. As to whether it was nitrogen peroxide?

A. Yes, sir.

Q. Have you settled that, then?

A. No, sir. Have not worked on it.

2265 Q. You said, now, did you not, in answer to this question, "What is the active agent of the Alsop process", and did you not answer, "I accept the results obtained by my predecessors in that respect"? A. I did.

Q. You claimed it was nitrogen peroxide?

A. I accepted that.

Q. "I accepted that assumption in all my experiments, in which I used nitrogen peroxide as the bleaching agent, in the laboratory. I proceeded in this way" and so forth?

A. Exactly.

Q. Do you think nitrogen peroxide is made by the flaming arc? A. I do.

Q. Do you think that, when it comes in contact with moisture, it forms nitric acid and nitrous acid?

A. When it comes in contact with moisture, yes.

Q. Do you think that the nitric acid that is made by the Alsop machine combines with the flour, and forms compounds in the flour.

A. If nitric resulted from the action on the moisture of the flour, I believe it would combine with constituents in the flour.

Q. If there is any nitric acid, it makes nitrates in the flour, in your judgment? A. In my judgment.

Q. All your experiments, here, with the spraying tests, and all that, proves, does it not, that it does so combine?

A. Yes.

Q. What is that? A. Not the spraying experiments.

Q. Well, some of your experiments prove that?

A. If there is any nitric acid there, it must have combined, at some time, with something in the flour.

Q. Just as sure as NO_2 combines with water, and makes nitric acid, just that sure nitric acid combines with ingredients in the flour, and makes nitrates? Isn't that true?

A. Well, I could not answer that that way, because I could accept one, and not the other.

Q. You can accept what one? A. One qualification.

Q. What one, and what is the other one?

A. I won't question the combination of the nitric acid with the constituents in the flour.

Q. If it be there? A. Yes.

2266 Q. Well, I say, if it be there.

A. Oh, yes, if the nitric acid be there.

Q. Just that certain will it combine with the flour?

A. If it is there, I believe, fully, it will combine.

Q. With the organic constituents? And, if there is enough of it so you can see it, just that certain will it be the xanthoproteic reaction; isn't it?

A. I do not believe it would.

Q. (Referring to an exhibit) Is that the xanthoproteic reaction? A. It looks like it.

Q. That was made by pouring nitric acid on flour.

A. .01, or .1 nitric acid?

Q. I don't remember, but I say, nitric acid on flour will produce the xanthoproteic reaction, won't it?

A. When it is sufficiently concentrated.

Q. Is there any free nitric acid in that bottle (referring to exhibit). A. I don't know.

Q. Could you tell by examining it?

A. I could by analyzing it.

Q. By looking at it?

A. I could not tell by looking at it.

Q. What would you say as a chemist,—now, there was some flour, and I took some nitric acid of commerce, and poured it onto it, do you think there was any free nitric acid in that?

Mr. Elliott: Concentrated.

Mr. Butler: All right, call it concentrated.

Q. Is there any free nitric acid in it?

A. I would certainly expect to find free nitric acid in there, if you poured concentrated nitric acid on the flour.

Q. Why?

A. The reaction will cease, at a point, there.

Q. If it was ten per cent, would it?

A. It would go down until some nitric acid was so dilute that the dilute nitric acid would not act.

Q. Dr. Folin told us that he put ten per cent nitric acid on some flour. Do you think that would leave free nitric acid in there?

A. Some free nitric acid, I would expect to find in there.

Q. Do you think it would make the xanthoprotein reaction?

A. I certainly do, ten per cent nitric acid in the flour.

2267 Q. And if there was a good deal more flour there, you might not find any free nitric acid? Isn't that true?

A. If that were mixed in, now, with flour that was treated with nitric acid, a sufficient quantity of nitric acid, there, would combine with the constituents in the untreated flour and you would lose your free nitric acid.

Q. It depends upon quantities, doesn't it, and dilution?

A. Exactly. Concentration and quantity.

Q. Quantity and concentration, but, the nature of the thing does not change, does it? The commercially bleached flour, I would like to find out how much you call "commercially bleached flour".

A. Commercially bleached flour, I call flour that has been bleached and placed upon the market for sale, or part of the same.

Q. You, in your inquiries and investigations, have found what you called "commercially bleached flour" to contain as high as twenty seven and a half per cent of nitrite reacting

material, if calculated and expressed in the terms of nitrite of sodium, have you not?

A. I got it under conditions in which I was trying to get commercially bleached flour, but I have doubts, now, as to whether some of those high ones were strictly speaking commercially bleached flour.

Mr. Butler: I move to strike that out.

The Court: It may stand.

By Mr. Butler:

Q. Did you not report, in your bulletin, that the maximum per cent was twenty-seven and a half, under the head of commercially bleached flour? A. I did.

Q. Believed it to be true? A. Yes.

Q. Now, you begin to think it was not commercially bleached?

A. A good while ago I began to think that.

Q. What do you think happened to it, now?

A. Just the same as I thought a good while ago, that the millers who sent this to me were slow in sending it in, and I wrote them a second letter, and they thought they would do an extra good job. After I wrote them that letter, they did an extra good job. Most mills were not bleaching at that time.

2268 Q. You had the millers send you in some samples?

A. I did.

Q. They knew you were expecting to see whether it hurt the flour? A. Yes.

Q. And they sent you samples, so you could find out?

A. Yes, they did.

Q. So you think when they were making these samples up, for you to find out whether bleaching hurt the flour or not, you think some of the millers were a little careless, and bleached it too strong?

A. No, you haven't my correct meaning. Some of them promised to send it, and they forgot about it, when I sent them a sack, and I sent them a second letter, later, and urged them.

Q. And they overbleached it, in their excitement over the second letter?

A. Not all of them, no. That twenty-seven and a half, I found came from one of those.

Q. So, you think that he got excited, knowing that you were going to find out whether bleaching would hurt it or not, and bleached too much?

A. No. I had requested him to bleach his low grade flour, and send me a sample, and he wrote that he had given it good treatment.

Q. And you think he got excited and bleached it too much?

A. No, he was not excited. He simply bleached it for me.

Q. So you would be able to show it was injurious? Don't you think these millers know enough to bleach lightly when they are sending it in to you for examination? Don't you think they are smart enough set of fellows, for that?

A. Not a bit of that. It was strictly a confidential matter, for their own information.

Q. Was that before it got into the laws of the state of Nebraska that NO₂ could be used for bleaching flour?

A. Oh, that was a long time ago. That was 1906.

Q. Do you know whether the millers had anything to do with that or not? A. With which?

Q. Getting it into the laws.

A. I don't know anything about it. I presume they did.

2269 Q. The average in bleached samples, you found to be 6.3 parts nitrite reacting material, calculated and expressed as nitrite of sodium? A. Yes.

Q. 6.3 parts? A. Yes.

Q. Have you ever determined how much gas it would take, in a dilution like that (referring to an exhibit)—you bleach in your laboratory, I believe? A. We do.

Q. A good deal? A. Yes.

Q. Have you any idea how much gas it would take, like Exhibit 51 to bleach a kilogram of flour like there is in this exhibit, 50, so that it would show 27.5 parts nitrite reacting material, expressed as nitrite of sodium?

A. It would take somewhere about fifty, or a little more Cc. per kilogram—cubic centimeters of nitrogen peroxide per kilogram.

Q. That is, the nitrite of sodium? Fifty? We will say there is, here in this (referring to exhibit) four and one, which would be one in five, so, you would say it would be solid up to fifty? That would be it, on this scale?

A. Solid to fifty, to produce the twenty-seven and a half.

Q. And about five times that, to get it into condition comparable with this?

A. Yes, it would. That represents one to five.

Q. Now, if you inhale that much, it would be a pretty bad thing to do, wouldn't it? A. Yes.

Q. Probably kill you, wouldn't it?

A. In that concentration?

Q. Yes. A. Oh, I don't think it would kill you.

Q. It would make you sick?

A. I don't think so. It would be very disagreeable.

Q. Don't you think it would burn your flesh, and your throat, and your esophagus, and turn them yellow?

- A. It would irritate the mucus membrane severely.
- Q. It would probably blister the skin off, wouldn't it?
- A. I don't know. I never tried it in a measured volume.
- Q. You don't think that this makes the bread any better, do you—this bleaching? A. Nothing, except it—
- 2270 Q. (Interrupting) In quality, I mean, except color?
- A. Color, that is all.
- Q. You do not think it makes it taste any better?
- A. Not a bit.
- Q. You do not think it makes any better gluten?
- A. I do not. Never did.
- Q. You do not think it makes any more nutritive food, do you? A. No.
- Q. You think that is a humbug, don't you?
- A. Why, certainly.
- Q. And you think that the only thing in God Almighty's world that can be said in favor of it is, that it makes it a little whiter?
- A. That is the only thing. Much whiter, sometimes.
- Q. It depends on how much bleaching juice you use? Isn't that it? A. Other things being equal.
- Q. And it puts nitrites in the bread, too, doesn't it?
- A. Either nitrites, or something that gives the same reaction with the Griess solution.
- Q. And you think, don't you, that unbleached flour does not contain nitrites?
- A. I was never able to get any unbleached flour, in the experiment station laboratory when I carried out experiments on it, that gave the reaction, but all unbleached flour in Kansas City seems to give a faint reaction.
- Q. They brought you around a good deal of that, since you were here? A. Samples I brought down, unbleached.
- Q. How? A. Samples I brought down, unbleached.
- Q. But you reported, didn't you, to your people, and you believe it, did you, that the unbleached did not give the test?
- A. I do.
- Q. And you think you can tell bleached flour by the Griess test, don't you? A. I do.
- Q. And, Professor Alway, you found, didn't you, that these acids that you assumed to be made—I will be perfectly fair with you—combined, attack the coloring matter, and the oil, and combine chemically with the ingredients of the flour, don't you? A. Well, I was unable to locate the whole of it.
- 2271 Q. Yes, I understand.
- A. I found something there that I could account for, assuming it formed nitrites, but I could not get any free nitric

acid which had even formed or went in there. I had to assume it, though.

Q. But you assumed that it had, and that it had combined wholly? A. I did.

Q. And that the bleached flour was not giving off NO₂ gas, to contaminate the wholesome brother in the sack opposite it?

A. Yes.

Q. You so reported and found? A. Yes.

Q. But, if you put it in a flask, and found the NO₂ there in equilibrium, and pumped it out, it would look as if it did—at least it might remain free?

A. But I cannot do that, when I repeat that experiment.

Q. You cannot?

A. I have failed, up to the present time.

Q. You saw this thing, here, that pumped it out of the bread?

A. I saw that experiment. Very beautiful experiment.

Q. You had never tried it before, had you? A. No.

Q. And as a chemist, you think it the fairest, most satisfactory way to test that very thing you ever did see test anything, don't you? A. Well, to test what?

Q. To test anything that it tests, whatever that is.

A. It is a very fine experiment.

Q. You think it remains in the bread?—now, you are not a toxicologist?

A. No, but, before that,—what was the question?

Q. I said, you think it remains in the bread? A. What?

Q. The nitrite.

A. Sometimes it does, and sometimes it disappears entirely. In all cases, it is greatly reduced.

Q. To about a third, in bread?

A. About half the time, when I made the bakings, I found it disappeared.

Q. Do you know of any reason why the boiling of flour would drive the nitrites out?

A. Yes. I know of reasons why it might, and, again, other reasons why it might not.

2272 Q. The amount of nitrites found in the flour in Nebraska, you reported varied from one half to fifteen parts per million of the flour? A. Where did I report that?

Q. Press Bulletin, Page 24. That is the bulletin your university sends out, I think.

A. If it is in the Press Bulletin, I so stated.

Q. That is in substantial harmony with your recollection, is it? A. Yes.

Q. Now,—

A. (interrupting) You see, that is not as high as I reported in here apparently. The Press Bulletin, I think, probably was written before the last of these were gotten out.

Q. Now, in your bulletin, Number 102, Page 51 to 52, is it stated there in substance as follows: "Nitrites, in comparison with nitrates, are very powerful drugs. They produce cyanosis, throbbing in the head, vertigo, staggering, and so forth, and finally complete relaxation." Did you so report? Is that your views?

A. That is not the way it appears here. Oh, I see. Yes. Part of that I wrote, and part I quoted from Parke-Davis & Company, Manual of Therapeutics, a commercial publication.

Q. You [adapted] the views?

A. Yes. I accepted them.

Q. That was your view?

A. Yes. I quoted that as authority.

Q. And you then believed, and still believe that to be the fact? A. Yes.

Q. Now, this refers to the question I first asked you, which may appear to you to be a little unfair, but if it is, you straighten it out. The American Miller, March 1, 1908, at Page 213, credits you with saying, "It seems necessary to entirely prohibit artificial bleaching of flour; to permit only the use of nitrogen peroxide; or, to keep a number of investigators busy, following up each new bleaching agent." Did you so state?

A. Part of it sounds entirely familiar, but part of it does not.

Q. Well, look at that.

A. I would like to have the original.

Q. That, I understand to be in the alternative, namely, that you must stop the whole thing, or confine it to NO₂, or
2273 keep a gang of investigators following new bleachers, like NOCl, and the like, and the rest of them, around.

A. This is Page 219. That was taken down by a stenographer, as I furnished no manuscript to a paper, and the quotation about Dr. Hayward is inaccurate. The punctuation is not my punctuation.

Q. Then, we will forget that you said anything about it, and I will withdraw the question, if you say that you do not favor bleaching by NO₂, but, if you are still in favor of it, I think I will still argue it with you.

A. It should be punctuated as follows: strike out the semicolon, and put in a comma. "It seems necessary to entirely prohibit artificial bleaching of flour,"—or should go in there,—or to permit only the use of nitrogen peroxide, or to keep a number of investigators busy following up each new bleaching agent." That expresses my sentiments, and that is the way I would punctuate it.

Q. That is the way I read it.

The Court: No you had semicolons.

Mr. Butler: No, but that is the meaning that I meant to convey.

Q. Now, Press Bulletin, at Page 24, gives this: "The Griess-Ilosvoy reagent gives pink coloration with all commercially bleached flours, and no coloration with unbleached flours, even if the latter has been stored beside the other for ten months." That was your experience? A. Yes, that is right.

Q. You never found any four parts to the million in the short time, did you, imparted from the atmosphere?

A. Well, I found large quantities, when I kept it in the laboratory, but not when I kept it in a well ventilated store room, outside the city.

Q. You found none? A. No.

Q. And, it is quite likely, if we were to spill some nitric acid here, on something that would produce NO₂, that it would contaminate the flour, even, in these sacks, under the table? Isn't that true? A. It very likely would.

Q. Right on the surface? A. Yes.

Q. And certainly would, these flours that are spread out here, wouldn't it? Isn't that true? A. Yes.

2274 Q. (Handing the witness a piece of paper) I just hand you that, and I will not bring it out, unless you want to.

A. It has been the cause of unpleasantness, in the past (returning the paper to counsel).

Q. You said, at the hearing, did you not, in substance that, "In one or two cases at that time they were not bleaching their low grades, that is, their lowest grades, and perhaps their second grade, whereas these samples bleached for my accommodation, and for the investigation, ran up in some cases to thirty, those very high percentages being where millers had attempted to bleach their lower grade flours to make them appear higher." Now, you have found that, haven't you, to be the fact, in investigations of commercially bleached flour, that they make the relatively lower grades appear higher?

A. No. That is a wrong implication. You are a little mistaken there, about what I stated at Washington. It was not that, directly, these millers were bleaching low grades, but practically none of them were bleaching low grades at that time.

Q. You mean they made a purposeful attempt—

A. (Interrupting) It may be, yes.

Q. To make the lower look like the higher? A. Yes.

Q. I see. A. Yes. They gave it a bleaching.

Q. And tried to make the lower grades look like the higher grades?

A. No, they gave it the bleaching, for accommodation, without regard to what the effect would be.

Q. You say, "Where the millers had attempted to bleach their low grade flours to make them appear higher."

A. I must have misstated that.

Q. I have the original transcript here.

A. Is that the original transcript?

Q. Yes.

A. That original transcript is full of errors. The stenographer told me he could not follow me, I talked so fast, and he said he would send me a copy for correction, but I never received it.

2275 Q. You say it is a typographical error?

A. That is an error, I should say.

Q. All right, we will withdraw the question, even if you say you did say it, but did not intend to.

A. I did not say it, whether I intended to say it or not.

Q. Now, you reported, did you not, at the hearing, that, by the lapse of time, the nitrites in flour did not disappear?

A. When you get below a certain limit, they stay.

Q. I know, below a certain limit, but now, didn't you find, as a matter of fact, that the nitrites recoverable, simply by washing the flour, and testing with the Griess test, and comparing with your color standard, didn't you find, by the lapse of time, that they did not disappear?

A. I have never experimented in regard to that.

Q. Did they ask you to analyze or test the flour that this man Shoeecraft brought from Clinton, Iowa, which he had had for fifteen months, which was bleached?

A. Never heard of that.

Q. And that the man from Valpraiso made the yellow loaf of bread out of? A. I never saw it, or heard of it.

Q. You don't know whether that was bleached or not?

A. Don't know anything about it.

Q. After you get up to a certain point with this treatment, you do not add any more nitrites? Is that my understanding of your report?

A. If you are making an analysis, immediately, for applied nitrogen peroxide, you find a rapid increase of nitrites, as you go up, but, every day after it begins to drop down, and after it has stood several weeks, it is away down.

Q. There are some nitro compounds, which do not respond to the Griess test?

A. There is something in there that acts on it. I don't know in what form it is.

Q. You don't know whether it is catalyzing, as has been suggested or what it is? A. I don't know what it is.

Q. Until this trial commenced, you were of the opinion that bleached flour could positively be identified by this reagent?

A. I am still of that opinion.

Q. You still think so? A. Yes.

2276 Q. You do not think it so impure in Kansas City, or Chicago, or elsewhere, that you cannot tell, by the Griess test, whether the flour is bleached or not, if you get it within reasonable time? A. No. I think I can tell.

Q. You think you can tell by that test?

A. Yes, sir, by the reacting with the nitrites.

Q. You reported at the hearing at Washington, last January, that you never had found any unbleached flour giving the nitrite reacting material reaction? A. I so reported.

Q. I believe you described this bleaching reagent—this NO_2 , as a very suffocating odor, when inhaled, and, in very large quantities, as very poisonous, corrodes most metals, and many vegetable and animal substances. Like nitric acid, it colors the skin yellow?

A. Exactly. That is, the pure substance, without any dilution.

Q. Now, I asked you, if that exhibit, 51, was filled full of pure NO_2 , and you had to inhale it, whether that would not probably kill you, if you just had that thing, and had to take it right down, wouldn't it?

A. I would not think so. I would not want to do it.

Q. Don't you think it would burn right down, just like nitric acid would, away down into your lungs?

A. If all of it changed into nitric acid, it would then act. I would expect it to change over into nitric acid and nitrous acid, and the nitric acid would act like any other nitric acid of the same concentration.

Q. I know. It would be very concentrated, then, on the moisture in your throat, wouldn't it?

A. I would expect it to be very concentrated.

Q. If I pour some nitric acid out, and let it run down my arm—concentrated nitric acid, it would dig a hole down that arm, just exactly like a burning iron?

A. Yes, if I would pour concentrated nitric acid on my arm. But, I would like to mention, I do not think it would be very concentrated, if you would consider the amount, there, and the amount of moisture in your mouth, it would be dilute nitric acid.

Q. You would not want to try it on your babies, would you? 2277 you? You would not want that tried on any of your babies, would you?

A. I never used them for such experiments.

Q. You do not give poisons to your own family, to test digestion, and things like that?

A. I have given bread from bleached flour.

Q. Have you given them nine or ten grains of sodium nitrite to see whether it is good for them?

A. No. I never used my children for experimental purposes.

Q. Nor your wife? A. No. I should use myself.

Q. Nor yourself? A. Yes. I should use myself.

Q. You would take poison?

A. I am not a toxicologist. I have not been experimenting on poisons. If I were, I should certainly use myself.

Q. You would take poison? A. Yes.

Q. But, if you were going to take nine grains of nitrite of sodium you would like to let it oxidize a little, wouldn't you, so as to weaken it up to nitrates?

A. I would consider what the action would be.

Q. If you found a man like Schmiedberg talking about five and ten making a man very sick, with hemoglobinaemia, you would not take it, would you?

A. I haven't that matter under consideration at all. I am not in position to express any opinion on it.

Q. Now, flour treated with nitrosyl of chloride gives the nitrite test? A. I never saw any of the flour so treated.

Q. Well, you would know that from your experience, wouldn't you? A. I haven't any knowledge on that.

Q. Well, turn around and look at the blackboard. Here is NOCl , plus HNO_2 , equals hydrochloric and nitric acid?

A. Yes.

Q. That is what you would think would happen? A. Yes.

Q. Then, you reported, that, "It certainly seems undesirable to let them use that sort of thing, until it is demonstrated by disinterested investigation that the flour so treated contains nothing objectionable, and that the quality has not been impaired."

A. Because the nitrosyl of chloride is a very active chemical, and will act upon the carbon nucleus.

2278 Mr. Butler: We object to that as immaterial and move to strike it out.

Q. At the hearing, you are reported to have said: "I found, in very greatly increased quantities of nitrogen peroxide applied to a given weight of flour, there came a time when everything seemed to go wrong in the flour. The color, instead of becoming lighter, became darker. The odor changed, and it got worse and worse, and the color of the extract changed, and the acid increased, and in some of the highly treated samples, where I used five hundred to one thousand c.c. nitrogen per

kilo of flour, when I got them in the oven, I found they were charred; so, that for small quantities, namely, simply a change in color, so far as we had observed, but an entire change in the properties of the flour, adding almost every undesirable property to the flour. Question: Would over-treatment produce in the flour changes that were not of degree, but of character? Answer: I would expect it would." Did you so state?

A. I think that is a correct statement, except it does not refer to baking, but refers to drying at one hundred and ten.

Q. Drying? A. Yes.

Q. Now, some baker here,—I think it was Mr. Westerman, who makes crackers,—testified that this bleached flour sometimes smelled in the oven like galvanizing works. Now, would this smell which you found in the over-treated flour be comparable, some way or another, to the electro galvanizing works, that you might smell around a city?

A. I don't know of any similarity. I do not recollect just what the disagreeable odor was. It has been so long ago.

Q. Well, it was bad? A. It was disagreeable.

Q. It would probably be very much worse, in baking large quantities of it at once, in crackers, wouldn't it?

A. It seems to me it would go to the amount of concentrated nitric acid upon the fats.

Q. That would be rancid?

A. Yes. There was the rancid odor, and a trace of acrolein.

Q. Acrolein? A. Yes, a very pungent smelling substance.

Q. Well, I don't know what a galvanizing works smells like. Do you think the over-bleached flour, in large quantities, would give off a very offensive smell?

A. I do not use the term "over-bleached."

2279 Q. Over-treated? A. Yes, over-treated.

Q. Well, I meant the same thing. Now, to be a little more specific about these matters—none of these experiments which you described here to Mr. Elliott, and showed to the jury, today, could be understood, or are understood by me, at any rate, as having any tendency whatever to prove that nitric acid is not produced in the Alsop bleaching, and does not combine with the flour. A. Now, that—

Q. (Interrupting) It is not free? A. Not free.

Q. I think we understand that, but I want to emphasize that, that it is not mixed in the flour as nitric acid.

A. Exactly.

Q. Your experiments are perfectly consistent with our claim that it combines with the flour.

A. Well, with some—yes.

Q. There may be some verbal distinctions about chemistry, that we care nothing about. Now, nitrous acid,—is that free, or combined in the bleached flour?

A. I don't know. I am not settled upon that point, really.

Q. If nitrous acid is free in the flour, let us assume that, now. A. Yes.

Q. Upon its decomposing, it would give off NO_2 ? It might? I don't say would, but might? A. Yes.

Q. And NO_2 might combine with moisture, and make nitric acid and nitrous acid? A. Yes.

Q. And the cycle might continue to go along as long as that thing lasted?

A. Until the nitrous acid was all changed, it would form new nitric.

Q. Kind of a catalyzing force?

A. Oh, no, not at all. It is a change of the nitrite to nitrate.

Q. I said that, because I understood catalyzing, once.

A. There is no catalyzing agent in there.

Q. But it will keep working over?

A. It will merely change over to nitrate, under that assumption.

Q. Free nitrous acid will keep on working until it all becomes nitrates? A. Until it all changes to nitrates.

Q. But, if it produces a nitrite, as distinguished from the nitrous acid, any salt, that will not keep working?

A. Very doubtful.

Q. Those are the poisons you talked about, that cause the vertigo and this reeling, isn't it? Those are the nitrites you had in mind? A. Yes, sir, those are exactly the ones.

Q. Those are the ones you had in mind? Now, just for the purpose of being verbally exact, is a rise of temperature evidence of chemical reaction?

A. It is evidence. One evidence, but it is not proof.

Q. One item of evidence? A. One item of evidence.

Q. In given surroundings, may be proof?

A. Under certain circumstances may be regarded as proof.

Q. May, under circumstances, be proof?

A. Yes, under circumstances.

Q. Very strong? In other circumstances, simply confirmation? A. Yes.

Q. In other circumstances, mere evidence?

A. Mere evidence.

Q. And it would be misleading to say, and leave it there, without explanation, as you did say,—that is, I mean to layman,—a rise in temperature is not proof of chemical action.

A. It may be considered as evidence, but not proof.

Q. If you were talking to a class, you would want to say it may, or may not be, and so on and so on? A. Yes.

Q. It is generally evidence, though? Isn't that true?

A. It counts as evidence.

Q. It counts as evidence always, doesn't it?

A. Well I would not say always, but I would say almost always; but not proof.

Q. You said there was no increase in rancidity. Now, did you mean that? A. Yes.

Q. Is there any rancidity at all?

A. In where do you mean?

Q. Flour. A. That just depends upon the kind of flour.

Q. I mean unbleached flour.

A. Often there is, in unbleached flour, rancidity.

Q. Is that a desirable attribute?

A. Rancidity is undesirable.

2281 Q. That is the smell of the oleic acid, isn't it?

A. No, it is the smell of the lower acids.

By the Court:

Q. You get in bad butter? A. Exactly.

By Mr. Butler:

Q. That is the smell? A. Seven or eight acids.

Q. Don't you think that nitrous acid and nitric acid, in appropriate quantity, and under proper conditions, might make the oil content of flour rancid? A. Free nitric acid?

Q. Yes.

A. Yes, I would expect free nitric acid, in proper quantity, to make it rancid.

Q. It would?

A. If there were free nitric acid there.

Q. And you think there is?

A. And if it were concentrated. No, I say it is not. No free nitric acid.

Q. But you think it is there, when it goes in there? It combines? A. Until it meets the flour.

Q. You think it goes in as free nitric acid?

A. Yes, but free nitric acid, combined with the flour constituents, will not have any oxidizing or hydrolytic action producing rancidity.

Q. But nitric acid, and the fat of flour will produce rancidity?

A. When the nitric acid is concentrated enough.

Q. That is what I am getting at. Now, nitro starch is a very bad thing, isn't it?

A. Makes a good explosive. Not as good as some others, though.

By the Court:

Q. A good explosive? A. Yes. Just like gun cotton.

By Mr. Butler:

Q. Nitroglycerin is a kind of a nitro starch?

A. Very similar to nitro starch.

Q. Comparable to nitrites that may be put in flour by nitrous acid? A. It is not a nitro. It is an ester.

Q. It would have kind of a class relation, wouldn't it?

2282 A. Not to nitrites, no, but nitro starch has a class relation to nitroglycerin.

Q. You would not have very far to go to make explosive substances in this flour by this bleaching process, would you?

A. Oh, a long ways, yes. That is just what I said, that there was no nitro starch; that there would be no nitro starch formed. The concentrated nitric acid would form nitro starches, along with the sulphuric.

Q. You do not qualify as an expert on health?

A. Not at all.

Q. Nor on poisons? A. Not at all.

Q. But, of course, as a chemist you do understand that nitric acid is poison,—you may be in error, but you think it is, don't you? A. I know it is, in concentration.

Q. You think nitric acid or nitrous acid is poison?

A. That would depend entirely upon the conditions. Although I am not a toxicologist, I would want to modify it.

Q. Yes, I know, but just simply as an ordinary chemist, you think they are poison, don't you?

A. I would not say yes. I would not want to tell any of my students that, without explanatory notes—full explanation.

Q. You would not think of telling any of them it was not?

A. I would not think of saying it was or was not.

Q. You would not think of telling any of your students that nitric acid was not poison, would you?

A. Well, I might, if I should modify it afterwards.

Q. And tell them it was?

A. No, tell them it was under some circumstances, and under what circumstances it was not.

Q. Under what circumstances isn't it poison?

A. I just stated I am not a toxicologist, but you asked what I would say.

Q. So, to make the thing sure, you would say, "Look out for that stuff, it will burn you"?

A. If it is concentrated, yes.

Q. "If you take it it will kill you," is about what you would tell a green freshman, isn't it? A. Yes, certainly.

Q. That is what you do tell them?

A. No, I do not. I haven't any occasion to.

2283 Q. You would have no occasion to tell them?

A. No. The students learn not to taste things around the laboratory unless instructed to do so.

Q. And you think it is better for them not to taste nitric acid, don't you? Now, about this odor. Do you know whether this bleaching medium smells or not?

A. I don't know.

Q. You never tried that? You know it does when you use it in the laboratory?

A. If I make the nitrogen peroxide, of course, nitrogen peroxide smells.

Q. But you never were around the mills?

A. Yes, I have been around the mill, and I have smelled a substance around the agitators, whether nitrogen peroxide or not, I do not know.

Q. Have you experimented a good deal on flour bleached in your laboratory? A. Yes.

Q. A great deal? A. Oh, a good deal.

Q. Many hundreds of times, you have bleached flour?

A. Several hundred times.

Q. For the purpose of ascertaining what effect this Alsop bleaching has upon flour? A. Yes.

Q. That was the—

A. (Interrupting) Of the Alsop and all others.

Q. Yes, all others using this medium?

A. All others using—

Q. (Interrupting) Now, you believe NO_2 is a distinct chemical substance, don't you? That is, that it is identified? That it is the same, however produced? A. Yes.

Q. Whether by electricity, or chemicals, or any drugs, or anything that way?

A. Whenever it is NO_2 , it is NO_2 .

Q. And you think that flour treated with it, whether in the laboratory or elsewhere, is essentially the same thing?

A. Other things being equal,—concentration, and such like.

Q. And that the appropriate and reasonable and sensible and scientific way to study the effect of this process, is to take a large bottle, and make some of this gas, and put in a little of it, and shake it, and put in a little more and shake it, and measure it, and then make your determinations, or studies, or whatever you want, don't you?

A. I have always worked on that assumption, but I have had some doubts as to whether it was entirely satisfactory.

Q. I know, but if we can't get any from the Alsop machine, to use, that is the best one in the world known to use, isn't it?

A. If I were doing that, I would apply very much greater dilution than I would in an agitator.

Q. Because of their claim?

A. No, not because of their claim.

Q. You haven't any confidence in that?

A. I don't know what their claim is. I am not here for the Alsop people.

Q. Well, now, let us see about that. Really, now that it is all over, haven't you a good deal of partisan feeling about this matter, and don't you want the bleachers to win in this law suit? Isn't your feeling that way? Now, I am not using this Dr. Alway, to be offensive, at all. Now, isn't that true, that you have, as a matter of fact, a partisan feeling, here, the feeling of contest, the feeling that comes with the fog of fighting, that you want your side to win this law suit?

Mr. Elliott: We object to that, Your Honor. I do not think that has got anything to do with it.

Mr. Helm: He has stated the reason he is here.

Mr. Butler: If the Doctor has any objection to answering it, all right.

The Court: Objection sustained.

Mr. Scarritt: The Doctor is not objecting.

Mr. Butler: That is all.

Witness excused.

2285 The Court: I am about to adjourn for the day, but, before I adjourn, I want to say that, in view of what I said before the evidence in this case was commenced, and in view of what I stated in open court before the witness now on the stand was called, there can be no other witnesses called by the defendant or claimant, to testify to the art or science of milling, nor commercial bakers, baking. I will allow one additional witness to the one now on the stand, if claimant so desires to call one, to testify as a chemist or toxicologist, and, if it is sought to advise me that I am in error by reason of having a hurried list of witnesses, counsel will meet with me in the morning at 9:30, and present their arguments.

Court thereupon adjourned to meet at 10 o'clock a. m., Thursday, June 30, 1910.

2286

Volume 4.

Morning Session.

Kansas City, Missouri, Thursday, June 30, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows:

Frederick J. Alway, in continuation of his cross-examination, further testified as follows:

By Mr. Butler:

Q. Professor Alway, in one of the excerpts from some of your former statements to which I call your attention, as I hold it in mind, and I do not pretend to hold it in my mind accurately, I got the impression that the statement was in substance to the effect that the coloring matter was acted upon by the bleaching re-agent in the Alsop process or in any of these NO₂ processes, and that other bases were acted upon and converted into salts by the acid. Is that the substance of your understanding of it?

A. No, I do not know what excerpt you refer to.

Q. I cannot put my fingers on it now, but we will get along without it, probably. Well, what is coloring matter in flour?

A. I do not know what the coloring matter is in flour.

Q. Or how much of it?

A. Nothing further than the quantity is extremely minute.

Q. You would not be able to say how many parts to the million? A. I would not.

Q. Coloring of the flour, how many parts of the coloring?

A. I would not.

Q. Or whether it is a terpene or not? A. I would not.

Q. You have not observed, have you, that it has any of the essential properties of any known terpene?

A. Well, I have not investigated, all that I know about it is the definition sent me a couple of years ago about this—

2287 Mr. Butler: Never mind; I move to strike out what was sent to him.

The Court: Yes, sir, it is stricken out.

Q. I want to ask you this question, and to bear it strictly in mind, whether you yourself have observed about the coloring matter of normally white flour any of the essential properties of any known terpene?

Q. I have no observation on that at all, Mr. Butler.

Q. Then you never did observe any of the essential properties of any known terpene about the coloring matter of flour?

A. I never regarded it with any respect to that, to see whether it ever did occur to me.

Q. I think I will ask you to answer whether you have observed? A. No, I have not.

Q. What is the law of mass action?

A. It runs something like this: The amount—the extent of the re-action in any example is proportionately to the weights,

the weights of the substance taking part in the re-actions which are present in unit volume in this interval of time.

Q. Present in what? A. In the unit volume.

Q. That is in the aggregate, in the complex substance?

A. In the unit volume of space.

Q. Yes, sir, we are speaking now—flour is a complex substance, isn't it? A. Yes, flour is a complex substance.

Q. And it has a number of ingredients?

A. A very large number, yes, sir.

Q. And a good many of them will act as bases for acids?

A. Act as bases for acids?

Q. Yes, may be I am not speaking with chemical accuracy?

A. No.

Q. But if treated by acids—

A. The acids would do as I pointed out yesterday.

Q. And the acids will combine with bases in flour, some of these ingredients will act as bases so as to make compounds or salts, organic or inorganic, am I not right about that?

A. I would not be surprised but what they would.

2288 Q. Well, now, isn't that plainly the truth, here is some flour containing calcium and potassium and proteids and starch and oil and coloring matter, and may be a great variety of things in normal flour. Now if you come along with a strong acid like nitric acid, that acid will combine with various bases in the flour, will it not?

A. It will combine with whatever bases there are there.

Q. And there are there a good many, are there not?

A. I do not know that there are.

Q. Well, don't you know the ingredients of flour?

A. I have a general idea, yes.

Q. Well, are there not there a great many substances which will unite with acids, forming the base, and the acid, the radicle, will make a salt or compound, am I not right about that?

A. Well, I can't say that I know that to be the case, because I pointed out already that the acid does combine generally with—

Q. It does combine?

A. But I don't know it combines with any base, I believe it simply replaces it, replaces other—

Q. Then you are talking about the same thing, but I do not understand enough of your science. What I am trying to get at is this, there are substances there that these acids will take chemical action upon, either to combine as bases or—

A. Yes.

Q. Or replace or decompose, or something or another, that it what I am getting at? A. Yes, I admit that.

Q. You see I would not know the difference between replacement and combination as a base, you in order to be accurate you must— A. I want to be accurate.

Q. Make that distinction. But I understand it as you do then, so that upon treatment of flour by large quantities of this NO₂ a great many different chemical reactions take place in the flour, a great variety of things, as you said in one of your statements, everything seems to go wrong?

A. Exactly, very large quantities, yes, exactly.

Q. The thing is knocked out as flour? A. Yes, exactly.

Q. Now you said that the 10 per cent nitric acid would give the Xantho proteic reaction, as I understood it?

A. Yes, sir.

2289 Q. Well, the 9 per cent?

A. I don't know about 9 per cent.

Q. Will the 8 per cent? A. I don't know.

Q. Will one per cent? A. I don't believe that it will.

Q. Well, now, you don't know about eight. Do you know about one? A. I have no experimental evidence on it.

Q. Well 1/80 of one per cent do you know?

A. I have no experimental evidence on that.

Q. You don't know then, do you? A. I do not know.

Q. That's it. Well, let me see, there are substances which are known, organic substances which are known as nitroso-compounds, are there? A. There are.

Q. Is nitrous acid one of the factors—of the substances which may be used to produce a nitroso-compound?

A. It is a substance most commonly used in obtaining nitroso-compounds.

Q. Now is that a mineral acid?

A. We regard that as a mineral acid.

Q. Is a nitroso-compound an inorganic compound or an organic compound?

A. Regard it strictly as an organic compound.

Q. So then, when you use the mineral acid, to make a nitroso-compound, you must have an organic base?

A. We must have an organic substance an organic compound.

Q. And such organic substances are found in wheat flour?

A. Such I am not saying such, I am not familiar that there are such; I don't know that there are such, but there are many organic substances in flour chiefly or principally organic substances, in wheat flour, chiefly almost entirely organic substances.

Q. Which, if treated with nitrous acid, are capable of forming nitroso compounds, am I right about that?

A. I do not know that there are.

Q. Do you know that there are not?

A. I do not know; no one knows the ultimate composition of flour.

Q. What is that?

A. No one knows the ultimate composition of flour.

Mr. Butler: I move to strike out what no one knows.

2290 The Court: Yes, that is stricken out.

To which ruling of the court claimant then and there duly excepted.

Q. So then you don't know whether nitrous acid may be employed so as to produce nitroso compounds in flour?

A. I do not know of my own knowledge.

Q. All right, we will pass that. Now there are compounds spoken of as diazo-compounds? A. A great many of them.

Q. Are they nitroso-compounds or is there a difference?

A. Well, it is right on the border line there many of the compounds are.

Q. We will not go into the fine distinctions because if you explained more clearly we probably would not understand, and if we did understand we would probably forget. What I am trying to get at, may nitrous acid be used to produce diazo-compounds?

A. When you use the right organic substance it may.

Mr. Butler: I move to strike that out.

The Court: Stricken out, not an answer.

To which ruling of the court claimant then and there duly excepted.

Q. Now then when it does produce a diazo-compound an organic substance must be used with it? A. Yes.

Q. Is there any organic substance in flour which may be used with nitrous acid to produce a diazo-compound?

A. You mean as it occurs in flour?

By the Court:

Q. He has asked in the flour, what occurs in the flour.

A. I have no knowledge of such a circumstance.

Q. You don't know then whether nitrous acid may produce diazo compounds in flour?

A. I do not know of a substance, no, with which it could produce them.

Q. Do you know that it can not produce them?

A. No, I do not know that it can not.

Q. So then you don't know what the truth is in that regard one way or the other?

A. Only the probabilities, as I stated.

2291 Q. I am asking you what you know? A. Yes.

Q. Diazo-compounds have been isolated, have they not?

A. Oh, yes, a great many of them.

Q. A great many of them, and they are compounds that are much feared by organic chemists when found in food substances, are they not, as to the effect upon food?

A. I could not speak on that; I am not a food chemist.

Q. Are you an organic chemist?

A. I was an organic chemist; I am still.

Q. I thought you qualified as an organic chemist?

A. Well, perhaps I did.

Q. Are not diazo-compounds resulting from the use of nitrous acid dangerous and objectionable substances if in appropriate quantities in the food, or are they good substances to put into food?

A. That is not a question of organic chemistry; that is a question of physiological chemistry or toxicology.

Q. Well, don't you know the nature of diazo-compounds?

A. I naturally regard them as extremely poisonous explosive substances.

Q. That is what I thought. So that nitroso compounds produced by nitrous acid is also regarded with disfavor at least, either as explosive or poisonous, or something, considering quantity, I am not getting into this poison definition at all?

A. I don't have the familiarity with them so—

Q. Well, I know, but they are looked upon with suspicion and disfavor are they not?

A. You mean as foods, or taken as foods?

Q. Yes, as foods?

A. Yes, we look upon all the compounds that we are not certain they are all right, with disfavor.

Q. Especially if nitrous acid be the radicle or substance used to produce them?

A. That would not make any difference.

Q. It would not make any difference?

A. No, it would be just the same no matter how it is produced.

Q. Well—

A. The nitroso-compounds would have its properties.

Q. Well, nitrous acid would always have to be used?

A. Oh, no sir, not always.

2292 Q. In the nitro-compound?

A. We can get nitroso-compounds without nitrous acid, a good many you can not get with nitrous acid.

Q. Now in flour there are substances known as amins or amino-compounds? A. Oh, yes.

Q. Are there primary amins and secondary amins?

A. There are primary amins.

Q. Well, if there are primary amins, one would naturally expect there would be some other kind of amins, because primary means first?

A. Of course, in the primary, we make primary and secondary and tertiary, but I don't know of any secondary in the food, in the flour.

Q. But it may be produced, the primary, the secondary amin? A. Oh, we can make the secondary amins, yes.

Q. And may be produced by the employment of one or the other of these acids, nitrous acid or nitric acid?

A. No, we do not make amins showing acid.

Q. I did not ask you how you do make them. I ask you if do know that the amin-compounds, either primary, secondary or tertiary, may not be made to some quantity so that they exist in the presence of or by the use of nitrous acid or nitric acid?

A. I would state that they may not be produced to the best of my knowledge by these acids.

Q. Do you state as a fact that they can not be produced?

A. I am not making any statement of the kind, all things are possible.

Q. Yes, now these amins, specially the nitrates, there are substances known as nitrate amins?

A. Nitroso amins separate.

Q. That is, that means that nitrous acid has been used?

A. No, it does not mean that; it means that the nitrum NO group has taken the place nitroso-amin.

Q. And it means an element of nitrogen in there?

A. The NO group, that is the nitroso group.

Q. Am I within limits when I say that that is the oxid of nitrogen?

A. No, it is not the oxid of nitrogen that is in there; it has lost its original property in part.

Q. Is ON different from NO? A. Entirely distinct.

Q. Well, I didn't know that, but you have the oxygen and the nitrogen? A. Both in there, yes.

2293 Q. And the nitrous amin is a poisonous substance?

A. I don't know in regard to that, I would not be surprised at all.

Q. Now, I am not getting into this trouble about definition again. You told me that the diazo was explosive and dangerous and deadly, and all that sort of thing, but now about the nitrous amin, is that regarded as objectionable and with disfavor and poisonous or injurious or deleterious or bad?

A. I don't know nothing about how it is regarded as a poison; I would not hesitate to work with it in the laboratory.

Q. Oh, no, and you work with strychnine in the laboratory?

A. Yes, sir.

Q. And prussic acid, there isn't any poison that you are afraid of in the laboratory if you know it is in the laboratory?

A. Yes, sir, and I would not use—

Q. Knowing where it is in the laboratory, isn't that true, is there any poison that you are afraid to work with in the laboratory if you know? A. Yes, sir, there are.

Q. What are they?

A. Hydrocyanic acid and mercury diethyl.

Q. So am I, but I didn't know any chemist was. Now, hydrocyanic acid is prussic acid? A. Prussic acid.

Q. Prussic acid you are afraid of in the laboratory even; what is the other? A. Mercury diethyl.

Q. Spell that. A. D-i-e-t-h-y-l.

Q. It sounds a little bit like a girl's name. Is that known by any popular name, mercury diethyl?

A. No, it has no popular name.

Q. That is the only way it is spoken of?

A. The only way.

Q. There are two substances so deadly poison that you are afraid to use them even in the laboratory, are they?

A. I would not use them without proper precaution, I would not attempt to work without proper precautions because it changes the gases readily and may inhale them.

Q. You would not attempt to work with anything without proper precaution, that is running in a circle, isn't it, Professor?

A. Not necessarily, no, I would work with strychnine with impunity because I would not get it in my mouth.

2294 Q. If using proper precaution no solid will kill you if you don't get it in the tissues some way, will it, that you know of; no solid will kill you if you don't get it into your tissues some way, that you know of? A. Not that I know of.

Mr. Elliott: I object to this examination; I don't see that it is relevant to any issue in this case at all.

The Court: Well, perhaps he is about through with it.

Q. Are you familiar with the chemical formula for the proteids?

A. Yes, so far as we have any conception of it, we don't know the formula of any of the proteids?

By the Court:

Q. Sir?

A. We don't know the formulæ of any of the proteids.

Q. Then you could not give it. He says he don't know.

A. We have general ideas of how they are built up and the way they break up.

The Court: Well, let's get along.

By Mr. Butler:

Q. I will call your attention for convenience in formulating a question to page 25 in Ammerstein, translated by Mondell, where there seems to be written some chemical [steam] or formula, and ask you if they do not indicate the primary and secondary combinations of proteids which will result in the primary and secondary re-action in nitroso production or compounds?

A. The one which is marked primary, that is the one you mean, primary?

Q. Yes.

A. Is a primary alone, and that with nitric acid will not produce a nitroso compound but will produce an oxy compound.

Q. Read that into the record, will you?

Judge Scarritt: We object to that as hearsay evidence, if your Honor please.

Mr. Butler: It is merely to save me the trouble of reading it.

The Court: I suppose the question in effect is, is that statement correct?

Mr. Butler: Yes.

Judge Scarritt: And he made his explanation of it.

The Court: Go on, Mr. Witness.

2295 To which ruling of the court claimant then and there duly excepted.

A. Well, I read the formula and then mark it. The main group to which I refer is that attached to the HN_2 group in the following formula: NH_2 , CH_2 , C_3H_6 , CH joined at one side to CO and at the other to NH , the nitrogen in the last group being joined to CO , and that to CH , and so on.

Q. Now, that with nitrous acid forms what?

A. An oxy compound.

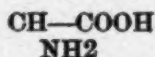
Q. An oxy compound. Is an oxy compound different from a nitroso compound? A. Entirely different.

Q. And from a diazo compound? A. Entirely different.

Q. What is the difference?

A. I will show you on the blackboard, if I may.

Q. Yes, sir, you may.



(Witness goes to blackboard and writes:
that is amino compound.

Q. You will have to read that into the record because we lose the blackboard sooner or later.

A. All right. The amino compound is HOOC CH .

Q. Well, you are reading that like a Chinaman, aren't you, beginning at the right hand and reading to the left?

A. We have to read at the beginning.

Q. I said that for the benefit of the reporter.

A. Yes. It makes no difference which way you read these in chemical formulae.

Q. We ought to read them from left to right, then, so that the reporter will get them; read from left to right.

A. I read from left to right. The compound I am giving $\text{CH}_3\text{—CH—}$

Q. That is —CH ?

A. In writing it we always understand there is a dash there.

Q. You better say the dash so he will understand, if it does not change the meaning, Professor?

A. No, not at all. $\text{CH}_3\text{—CH—COOH}$ —joining the CH to NH_2 .

Q. That would be the corresponding diazo compound if it existed. You read that into the record.

A. In the above formula the NH_2 group is replaced by the group NNOH .

2296 By a Juror:

Q. Why do you change the color of your chalk?

By Mr. Butler:

Q. Now, you change the color in your chalk?

A. Yes, sir.

Q. To indicate NNOH , that is the diazo group?

A. Yes, sir.

Q. That is what I thought, mark that diazo, that is it.

A. Now, the oxide group, you want the oxic now.

Q. Oxic.

A. And I will put in the amino-compound, the NH_2 group is replaced by the OH group, giving an oxid compound.

The symbols written on the blackboard by the witness are as follows:

$\text{CH}_3\text{—CH—COOH}$	
NH_2	amino
$\text{CH}_3\text{—CH—COOH}$	
N=NOH	diazo
$\text{CH}_3\text{—CH—COOH}$	
OH	oxy.

Q. Now, what is the oxy group?

A. OH —oxy or hydroxy.

Q. Now, I want to speak of the secondary group in the same way. You say that that with nitrous acid will not form nitroso compounds or diazo compounds?

A. In the first place that is not a secondary amin, that is a secondary derivative, it is an amido.

Q. It is an amido?

A. And in order that the secondary amides may form nitroso compounds they must, according to Beilstein be—

Q. Let us forget Beilstein.

A. They must be compounds in character.

Q. Then may the amides with nitrous acid either directly or indirectly produce the diazo or nitroso compounds?

A. They would not produce diazo, they would produce nitroso if the amid was sufficiently basic.

Q. All right, let us assume that the amins are sufficiently basic, and the nitrous acid is sufficiently acid, then we would get the nitroso compounds, would we, under proper conditions?

A. Yes, sir, if you had a secondary amid sufficiently basic you would get the nitroso compounds.

Q. Well, that is well known by chemists? A. Oh, yes.

Q. It really gets itself down to the method of expression after all, doesn't it? A. It does.

2297 Q. The difference that appeared between you and me a little while ago.

A. I would not say so, no, not chemically, I said.

Q. Not chemically, but I mean—

A. Accurately, no, I would not say it was that at all.

Q. Not scientifically but considering my frailness in the use of the language.

A. Can't express such things in any except scientific language, as far as I am aware of.

Q. We are aiming at the same thing, you hit it square and I came around behind it and kicked. Well, does not nitrous acid act upon these groups, both the primary and secondary, no matter their cause? A. Not necessarily.

Q. Well, now, not necessarily, but will it not?

A. Well, with that limitation about nitroso that I stated.

Q. It will?

A. Yes, if it is sufficiently basic it forms the nitroso compounds.

Q. Your investigations then enable you to say with great certainty whether or not these substances used to bleach flour, nitrous acid and nitric acid, will not produce these things?

Judge Scarritt: We object to that because there is no evidence on which to base it.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. It will be very little surprise to me, surprised so often.

Q. I ask you as a chemist if nitric acid or nitrous acid will not, in flour, under proper conditions produce diazo compounds?

A. As a chemist I really never use the expression "impossible" in regard to chemical re-action.

Mr. Butler: I am going to have that stricken out, and I am going to see if I can get you to say no, or you don't know, or yes, to that.

A. Will you read the question?

Q. We claim that nitric acid and nitrous acid under proper conditions will produce diazo compounds in flour, as I understand the situation. Do you say that is not true, or do you say you don't know, or that nobody knows?

2298 Counsel for claimant objected to the question.

The Court: Go on and answer, if you know, say yes or no.

A. Putting in the modifying phrase there, under proper conditions, of course it will.

Q. That is what I say. A. Under proper conditions.

Q. Now, we are not going into the conditions.

A. Excuse me, I am not willing to assume, though, that those proper conditions are there, you can put in a compound that will re-act in your flour.

Mr. Butler: I move to strike out what he is willing to assume as immaterial.

The Court: That is stricken out.

To which ruling of the court claimant then and there duly excepted.

Q. Now, then, I want to ask you whether or not by the use of nitrous acid or nitric acid, the nitroso compounds may not be produced in wheat flour under proper conditions for their production?

A. Well, I cannot give an intelligent answer when you put in that phrase "under proper conditions" unless I know what you mean there by that.

Q. Well, under any conditions then, is that an intelligent phrase?

A. Yes, under certain conditions we can have them produced there—

The Court: You are making the same mistake, and I tell you, why do you say "under certain conditions" or "not necessarily" and all these things?

A. Well, to make myself accurate.

Mr. Butler: My question gave you all the sea room you need as a scientist, I think.

Judge Scarritt: I object to his lecturing the witness.

Q. Now, then, do you say that nitro starch cannot be produced by nitric acid and flour, under some conditions which are proper for the production of nitro starch?

A. Of course, I would expect nitric acid and starch to produce nitrous acid under proper conditions.

Q. Now, nitro starch is a dangerous substance, isn't it?

A. A powerful explosive like guncotton.

2299 Q. Poison too? A. I would expect it to be.

Q. Will nitrous acid act upon phenol derivatives in flour and produce tyrosine, which is a poisonous substance, known to be a poisonous substance?

Counsel for claimant objected to the question.

The Court: Answer.

A. I think there is a mistake in the question.

Q. Will nitrous acid act upon phenol derivatives in flour?

Counsel for claimant objected to the question.

A. If it were in sufficient concentration I would expect it would act upon it—phenol.

Q. Yes, and under proper conditions nitrous acid will act upon phenol derivatives? A. Yes, sir.

Q. Produce a poisonous substance, won't it?

A. I don't know about that; I don't know what the properties are.

Q. Well, don't you know that the nitrous phenols are poisonous?

A. I have no knowledge at all on the subject.

Q. Will nitric acid act upon phenol derivatives?

A. With unusual readiness compared with other organic compounds.

Q. Did you hear the testimony of Dr. John A. Wesener?

A. I did not.

Q. Do you know of anything that will give the Griess nitrite test except nitrites?

A. I don't know of any, I haven't tried with anything.

Q. Do you know of any of the physical combinations that will give the Griess test?

A. On nitrates or phenols?

Q. Yes, which are not nitrites.

A. I never tried it.

Q. Don't know about that? A. No, I never tried it.

Q. Well, isn't it the common understanding of chemists that this Griess test will identify nitrites?

Counsel for claimant objected to the common understanding of chemists.

The Court: You may answer.

To which ruling of the court claimant then and there duly excepted.

A. Yes, nitrites of organic or inorganic form or something that forms nitrous acid and nitrites.

2300 Q. Anything that forms nitrites, nitrite re-acting material? A. Yes.

Q. Will the nitroso phenols give the test?

A. Never tried it.

Q. Well, are the nitroso phenols nitrites?

A. No, they are not nitrites.

Q. Now, when you overtreat flour you say everything appears to go wrong? A. Exactly.

Q. What is that? A. That is what I say.

Q. What becomes of the nitrite re-acting material, you could get it up to a certain point and then you could not increase it, isn't that true?

A. Well, when you first apply it it is certainly increased, but after standing, it goes down rapidly, the more you put in the more rapidly it declines.

Q. What becomes of it?

A. I don't know what becomes of it, never attempted to identify it.

Q. Isn't it a part of your knowledge of this subject of bleached flour that the nitrites which are put in by the bleaching do disappear with more or less slowness or rapidity?

A. Well, I have never found that to be the case where a moderate quantity has been used.

Q. Well, where any moderate quantity has been used what is it?

A. Well, I never found it in the case of the samples that I obtained from the mill.

Mr. Butler: I move to strike that out.

The Court: That is not an answer.

A. Will you read the question?

(Question read by the reporter.)

A. Well, where a moderate quantity is used it disappears with great readiness.

Q. What becomes of it? A. I don't know.

Q. Don't it form nitroso compounds?

A. I don't know; I would not expect them to.

Mr. Butler: I move to strike out what he would not expect.

2301 Judge Scarritt: We object to striking it out.

The Court: That may stand.

Q. Did you ever try to find out whether or not bleached flour will contaminate other flour by laboratory experiments. I have asked him if he ever tried to find out whether or not bleached flour would contaminate other flour experimentally in a laboratory?

A. Well, I can tell you what it did; I don't know whether it would answer your question.

Q. I ask you to tell me what I ask.

A. Well, using the word "contaminate" there, I would say no.

Q. It will put nitrites into it?

A. Yes, I tried to see if the bleached flour placed by side of unbleached flour will put nitrites into the unbleached, I was unable to find any evidence of it.

Q. Put it in sacks beside each other?

A. In a couple of cases I put under a bell jar one pound bleached and the other unbleached.

Q. How long did you keep it there?

A. I have forgotten, two days, I think, and then I had a great many sacks bleached and unbleached, paper lined, cotton covered sacks, stored side by side.

Q. Well, now, what I am trying to get at is this; Are you prepared to say that if you take a flask, an ordinary flask, dessicator, if you like, put bleached flour in it, put some other flour in a dish above it, that in the course of a week or ten days this other flour won't take on nitrites?

A. The experiments which I have attempted with exactly that object in view, I failed to get any.

Mr. Butler: I move to strike that out as not responsive.

The Court: Stricken out.

Q. I ask you if you are prepared to say now, I think I will make it plain so that there will be no misunderstanding when we get through with your answer—can you see that paper where you are? A. Yes, sir.

Q. It is a sketch called "Government's Exhibit 26". I call your attention to the drawing B; assume that to be a

flask; you put flour in the bottom of it, up here you put a dish with some KOH in it?

Judge Scarritt: What do you mean by "up here", inside?

2302 Q. Yes, inside of the flask on a pedestal. Now, do you know whether or not KOH will take nitrites or nitrous acid re-action from ordinary bleached flour?

A. With KOH there I have made no experiments, I have no knowledge.

The Court: He asked if you know.

A. I don't know.

Q. If you did, let us assume that it does, as a fact, that that thing is done, that means, does it not, that that flour gives off something or another that carries the nitrites to that KOH, don't it?

A. Will you repeat that question?

(Question read by the reporter.)

Counsel for claimant objected to the question.

Q. The quantities being observable.

A. Well, put it that way, I would say it was not evidence.

By the Court:

Q. Was or was not? A. Was not.

By Mr. Butler:

Q. Where did the nitrites come, from what?

[Q.] From the peroxide, may go out there and form nitrites.

Q. Nitrogen peroxide? A. Yes, sir.

Q. The gas itself? A. Yes, sir.

Q. Then it proves, does it, that it gives off the gas?

A. Yes, if there is no nitrite re-acting material in the body.

Q. That is right exactly, so that on that experiment just as I stated, take this flour that is seized, put it into a dish like this B on 26 and above it, with the open base put KOH on it, that takes no nitrites, your opinion is that that flour exhales the bleaching gas, doesn't it? A. It does.

Q. Now, instead of the KOH let's put some unbleached flour there, the same experiment right over, that is nitrite free flour, we will put it there? A. Yes, sir.

Q. And in the course of a few days that flour will give the Griess test for nitrites, that again proves that the bleached flour exhales a gas or vapor of some kind which contaminates the unbleached flour in that dish, doesn't it, and adds nitrites to it? A. I don't think that proves it.

2303 Q. You don't think it proves it. Where do the nitrites come from that go to the nitrite free flour?

Judge Scarritt: We object to that because he is assuming that they are there.

Q. Yes, I am asking him to assume that they are there.

A. You ask me to assume that they are there.

Q. Yes, did you understand me to do that in my last question? A. Assuming that, yes.

Q. Assuming that the nitrites go to the clean nitrite free flour? A. Yes, sir.

Q. Now, I ask you where does it come from?

A. It may come from the reduction of nitrates in the flour, in the unbleached.

Q. I see, in the unbleached?

A. In the unbleached.

Q. What reduces the nitrites?

A. I don't know any reducing agent that would reduce the nitrites.

Q. What reducing agent is in there to reduce it?

A. I do not know.

Q. Well, I know, but now are you—now, let us see if that is true, then, in ordinary atmosphere, if there is no contamination from the bleached flour, you would find this reduction of nitrates in every sack of flour, won't you, in time?

A. If there were a reducing substance generated there.

Q. I know, but you have told us that your experience is that you never do get the nitrites in an unbleached flour?

A. That is my experience, yes.

Q. That is your experience, so that your experience is that under ordinary conditions you never did get the nitrates of the unbleached flour reduced to nitrites to give the test, isn't it?

A. Not when they are stored in sacks that way; with water they do reduce to a nitrate.

Q. No, sir, you can put them under test by the same water?

A. Put water in it and the nitrite re-acts and develops at times.

Q. At times, is that the general truth?

A. Oh, I have not investigated that, I noticed that in various cases.

2304 Q. Generally and broadly speaking, that wheat was dry, you don't get the nitrite tests in unbleached flour, isn't it?

A. With the flours that I have examined?

Q. Yes, or dough. A. I have not examined.

Q. Haven't examined unbleached dough for nitrites?

A. No.

Q. Well, is there any reason to expect that you get nitrites?

A. The reduction.

Q. Well, do they reduce? A. Might easily reduce.

Q. They might easily, but do they? A. I don't know.

Q. No. Now, then, not knowing whether they reduce or not, when we put here the contaminated flour filled with nitrites by bleaching in that vessel, and put up here above it in an open dish the pure flour that has not been bleached, or has nitrites added to it, and you find that nitrites are added, when a strong re-action comes, is it not dodging the pure and simple to say that it may be the result of reduction of nitrites which are in the unbleached flour?

A. It is not dodging you in the least.

Q. Now, then, let us assume, as the KOH experiment proves, you say that that bleached flour is exhaling the NO₂ gas, that it is in fact exhaling it?

A. Well, you have stated there that, I admit it proves it.

Q. Yes, sir, that is what you did admit as to the KOH.

Judge Scarritt: On the assumption.

Q. Yes, on the experiment, assumed that to be present, the testimony supports that assumption.

Judge Scarritt: I object to that and ask that it be stricken out.

Q. Now, you substitute for the KOH unbleached flour, and you find that contaminated with nitrites, would you not say that it was the bleaching gas that contaminated that?

A. I am not clear as to what I stated here before, with the assumption.

Q. Well, I ask you to answer my question as I have now put it, to-wit, assume the fact to be that the bleached flour in the bottom of that flask exhales the bleaching gas NO₂, and that after the lapse of some time the flour in the open dish, the unbleached flour in the open dish, above the bleached flour, takes on nitrites and gives the nitrite re-action, I ask you
2305 if on that state of fact you are able to form an opinion as to where the nitrites come from?

Same objection by counsel for claimant.

A. You read that question.

The Court: Oh, now, you have to have that read over; do you have to have that read over.

A. Yes, sir, to be sure.

The Court: How on earth does a scientist ever do anything unless he fixes his mind on a proposition.

(Question read by the reporter.)

A. Yes.

Q. Where?

A. From the flour below which you say exhales the nitrogen peroxide.

Q. You wouldn't think there would be such putrefaction of the unbleached flour in three or four days as to produce nitrites itself?

A. Not in the dry flour, and it was not putrefaction that I meant at all.

Q. You don't think that in three or four days there would be any such reduction of nitrates to nitrites in clean, wholesome unbleached flour? A. Not in a dry flour.

Q. Or twenty days? A. Not in a dry flour.

Q. Put water or something on it that was full of chemicals, you might get it?

A. No, sir, pure water, I refer to.

Q. Where would it come from? A. Distilled water.

Q. The purest water sometimes is very poisonous, isn't it?

A. It is claimed that distilled water is poisonous for some things.

Q. Now, under the law of mass action if you treat some flour with nitric acid do you think that the moisture content of the flour would be free from nitric acid? A. Yes, practically.

Q. Did you ever demonstrate that?

A. What I give, yes, sir.

Q. Well, I know, but let's be a little bit plain about that, about twenty pounds of water in a barrel of flour, isn't there?

A. Yes.

Q. Over that. Now, you put enough nitrite acid in there to combine with the various bases and substances of the flour, then take out the water, I am now speaking of known quantities, large quantities that ordinary men can see would be 2306 free from nitric acid; will the water be free from nitric acid.

A. If there is a vegetable acid there there might be minute quantities.

Q. Of nitric acid? A. Yes.

Q. I am now speaking of minute quantities, it is the truth. is it not, that if you take a weak base and a strong acid, and a strong base and a weak acid, and get them in combination, and they have affinity for each other, you put them together, they will never trade partners completely, will they?

A. They are arranged themselves.

Q. Not completely, though, you always get the test in the solution? A. Every one, yes.

Q. That is in obedience to the law of mass action, isn't it?

A. I don't know that that is in obedience to the law of mass action, but it is a fact.

Q. It is illustration of it, isn't it?

A. Yes, of the re-action I don't know as it an illustration of the law of mass action, but it is a fact.

Q. So that in the solution, the water, the solution, the liquid solutions in the flour, we will expect to find the nitric acid in minute quantities?

A. It would not be present as nitric acid; it would be NO_3 ions.

Q. That is very technical; it would be nitric acid in solution in minute quantities? A. In minute quantities, yes.

Q. So that really to the gross mind, like lawyers and jury-men, that is a solution from nitric acid?

A. They don't have an idea of the quantity that is involved, yes.

Q. It would be in minute quantities? A. Extremely.

Q. And would be minute, free nitric acid, wouldn't it?

A. Extremely minute; it would not be nitric acid there.

Q. It would be extremely minute?

A. It would be the ions.

Q. Yes, I know.

A. The same as you get by bringing saltpetre into butter-milk, for instance.

Q. There would be free nitric acid there, be minute quantities?

A. But we don't speak of it as nitric acid when we get it broken up into these ions.

2307 What is an ion?

A. It is a constituent connected with electricity, a substance which will carry electricity in water, which will break up when it is put into water with a sufficiently dilute solution.

Q. It is not broken up or is not changed yet mechanically?

A. Yes, sir, there is a mechanical change.

Q. Well, that is very fine citing, isn't it?

A. No, it is not, fine citing; it is simply accurate science as we look upon it now.

Q. Does this bleaching take place by ionized air?

A. I don't know of ionized air.

Q. Well, doesn't this air—you have read this patent, haven't you? A. I have not.

Q. The air going from the seat of poison to the flour and there bleaches it?

A. I am entirely unfamiliar with the patent.

Q. This patent tells that the moisture content is increased by bleaching is that true?

A. I don't know, I made no experiment with it.

Q. The patent tells us that the proteins are practically doubled by the bleaching, is that true?

A. I consider that a ridiculous statement.

Q. The patent says that it increases the nutritive value of the flour because the proteins are increased, is that true?

A. I would not expect it to be at all.

Q. You know it is not so?

A. No, I couldn't say that I know it is not so.

Q. Well, now, let us see. You say it is ridiculous to say that the proteids are increased?

A. Yes, and I may say it is ridiculous without knowing it, ridiculous in my opinion.

Q. It is just as absurd to say that you could break a two year old steer in a minute?

A. I would not like to make a witness.

Q. This is as absurd as anything you can think of?

A. It is very absurd.

Q. Now, then, is not the statement that the proteids being increased and therefore the nutritive value is increased, is that not equally absurd?

2308 A. I would say that was absurd in the same way, yes.

Q. Well, you qualified that a little while ago?

A. Oh, no, I qualified about my knowing, that is all.

Q. Well, don't you know it; don't you know it?

A. I have not investigated its nutritive value, but I fully expect it.

Q. Now, there are some other things in this patent I want to ask you about to see what you think of this; They say, "The second analysis of the flour was conducted by the Henry Professor of physics of Princeton University, and his assistant professor, and it was found that while the untreated flour contained fifty-four thousandths of a gram of nitrogen one gram of flour, the treated flour contained seventy-five thousandths of a gram of nitrogen per one gram of flour. Do you hold those figures in mind? A. I think so.

Q. That is an increase of eleven per cent, isn't it, on the basis of a total would be .075, .054—would be twenty-one per cent on the basis of the total wouldn't it?

A. Thereabouts, yes.

Q. Have you any idea how much NO₂ gas it would take to do that?

A. I have to calculate, it would be a large quantity.

Q. Wouldn't it be more than sixty-six thousand parts to the million?

A. I would not be surprised, somewhere near about it.

Q. Yes, now, isn't that statement chemically absurd?

A. Yes.

Q. Untrue, isn't it?

Judge Scarritt: We object to that.

Q. If it is commercially bleached, now?

A. Yes, I would say it is untrue.

Q. No foundation for it at all if the flour was commercially bleached? A. No.

Q. Are you familiar with the substance known as NO₃?

A. NO₃?

Q. Yes. A. I am not.

Q. N₂O₃? A. I have some familiarity with it.

Q. Is that the bleaching re-agent in this case?

A. I don't know.

Q. Have not been able to find out, have you?

A. I have not.

Q. Now, I want to get a little of that—this thing of producing N₂O, you are familiar with N₂O?

A. Or NO₂, which?

Q. NO₂?

A. Yes, I am familiar with it.

2309 Q. What produces it?

A. Different methods of making it.

Q. In the Alsop machine what produces it?

A. Well, I have no personal knowledge of the Alsop machine, but assume it is a flaming electric discharge.

Q. You produce it in a flaming arc?

A. The oxygen, nitrogen and the air uniting.

Q. What makes them unite?

A. The energy derived from the electric.

Q. The heat, isn't it? A. It is a form of energy.

Q. You get the same thing in the test tube, can't you, a platinum test tube?

A. The same nitrogen, you can cause them to combine at a sufficiently high temperature.

Q. Yes, sir, at the temperature that the flaming arc produces; that is all there is to it, isn't it?

A. I don't know as it is the same temperature, but it is a high temperature.

Q. What temperature will do it?

A. Oh, I don't know just what temperature will do it, it is a high temperature.

Q. Well, is it not known to you that the only point there is to this flaming arc is that it generates heat at very high temperature?

A. No, I would not want to say that is the only point.

Q. Well, what is the other point?

A. Well, there is electrical energy there.

Q. What does it do?

A. We don't know; I don't know.

Q. I say, do you know of anything except the heat that does do it? A. No, I don't know what it is.

Q. If the heat will do it in the platinum test tube just the same, beginning at fifteen hundred, continuing with greater rapidity to two thousand, twenty-five hundred and three thousand and degrees, then you would say heat was all there is to it, wouldn't you?

A. I would say that heat was an important part; I don't know as it is all there is to it.

Q. Now, at what temperature does the nitrogen and oxygen and the air first combine? A. I do not know.

2310 By the Court:

Q. Well, about what; about what temperature would unite them?

A. I don't know, if I was making a guess I would guess it fifteen hundred, or thereabouts, centigrade.

By the Court:

Q. Fahrenheit?

A. Centigrade, but that is just a guess.

By Mr. Butler:

Q. Now, is it not looked upon by the authorities, chemical authorities, that the heat is the thing that does it, and that the flaming arc is merely a means of heating the air to a high temperature, the formation of these substances, the NO₂, and then that takes on the oxygen from the air, makes simply a chemical change, isn't that true?

A. I am not familiar enough on this subject to pass a definite opinion; I have read that, though, by leading writers.

Q. That is your understanding of it, isn't it?

A. I have never given it serious consideration.

Q. Now, is there any other product except the NO from the heat which takes on the NO₂, which takes on the other O and makes it NO, from the air?

A. Any other form, you mean?

Q. Yes, when does it begin, at what temperature does it begin to take the oxygen from the air after the NO is made?

A. I do not know.

Q. Isn't it 630? A. I don't know.

Q. Now, have you any views at all as to whether N₂O₃ exists as a gas, I mean, now, as a compound?

A. As a definite compound?

Q. N₂O₃, what do they call that? A. Nitrogen.

Q. Trioxid whether it exists as a compound gas?

A. Well, that is a much disputed point in the very latest literature.

Q. You don't know? A. I don't know.

Q. You do know? A. I do not know.

Q. Well, I was going to ask you another, you did know what I thought you did. You do know, do you not, that it does exist as a bluish liquid. A. I believe it does.

Q. Well, that is well known and conceded by everybody?

A. That is conceded by everybody.

Q. Without the realms of dispute. You never assumed in your study of bleached flour that N2O3 did the bleaching?

A. Not before I published my bulletin it never occurred to me.

Q. Well, neither in your work and investigations yet have you ever at any time assumed it? A. Yes, I have.

Q. You have, when?

A. More recently it seemed more probable.

Q. When? A. Oh, in the past six months.

Q. More recently than that?

A. Well, up to the present time.

Q. Have you ever expressed the professional opinion, scientific opinion that it does?

A. I don't think I have ever expressed an opinion on that subject.

Q. But you have always expressed the opinion and all your writings are on the assumption that flour, your view, that NO2 did it?

A. I expect that, yes, all my publications on the subject appeared before it occurred to me to consider the other.

Q. And believed it, didn't you? A. I believe it now.

Q. Yes.

A. No, I am very much in doubt whether this is N2O3 in any way there, or whether it is NO2 that does.

Q. Does it make any difference, they are both poison?

A. There are two compounds.

Q. They are both poisons, aren't they?

A. Oh, I presume they are very similar, the two compounds.

By the Court:

Q. I say, are they poisons? A. I don't know.

By Mr. Butler:

Q. Well, you know that NO is, you told us that yesterday didn't you? A. That I assumed it was, yes.

Q. And you think that N2O3 is? A. I think so.

Q. And you think that nitric acid?

A. It would be about the same.

Q. And you think it is poisonous, don't you?

A. I have not qualified.

Q. Now any chemist knows substances that are poisonous, any chemical mineral acids?

A. If taken in sufficient concentration.

Q. Yes, of course, if there is enough of it, it is a poisonous substance. If you take enough, it will kill, if you take a
2312 little less, it makes you sick, and so forth?

A. If you take enough it will kill, expect that.

Q. So all of these oxids of nitrogen, no matter what form, they may?

A. Laughing gas administered by dentists, that is N₂O, nitrous oxid—

Q. That is not? A. Not considered poisonous.

Q. That is simply an anesthetic? Yes, that knocks you out in about a second? A. Well, it puts you to sleep.

Q. It would not be very good to use with your bread all the time? A. You mean, eat the gas?

Q. Well, inhale it then with air?

A. I don't know what effect small quantities would have, I have no idea.

Q. You have not qualified as a toxicologist?

A. Not at all.

Q. Now then do you feel well enough qualified to defend your statement that N₂O is not a poison?

A. No, I would not defend, I would not think of defending it.

Q. Now are you well enough qualified as a toxicologist to say that N₂O, the laughing gas, which knocks you down like an anesthetic, is not well known to be a very dangerous poison?

A. Well, I did not mean to state that it was well known that it did not, but it was an exception to those compounds of which you are speaking, the trioxide and peroxide.

Q. You told us all of these are poison, I understood you to say that laughing gas was not?

A. It was different if we inhale it in different quantities.

Q. Do you say it is not a poison?

A. I am not qualified as a toxicologist at all.

Q. If you expressed the opinion here on this record that laughing gas is not a poison; do you want to withdraw it or defend it? A. I want to defend it.

Q. What is that?

A. It can be withdrawn. I would be glad to have all questions in regard to toxicological subjects withdrawn.

Q. I don't want you to qualify as a toxicologist but still—

A. I am merely qualified as a chemist.

2313 Q. And then decline to be one when your answers would be my way.

Mr. Elliott: I think this witness has been very fair.

Mr. Butler: So do I, sir.

The Court: Lets get along.

Mr. Butler: I think that is all.

Redirect Examination

By Mr. Elliott:

Q. Dr. Alway, I want to ask you, in order that we may have an understanding of the situation, we have been speaking here of so many parts per million of nitrite reacting material, and as I understand it, the figures that have been quoted you from your book or pamphlet or bulletin rather, those figures are given in terms of sodium nitrite, is that correct?

A. They are.

Q. Now to put these figures on the same basis as we have been using here in this trial, what would be necessary?

A. Divide by five in all cases, make nitrous nitrogen.

Q. That is take the case that Mr. Butler put to you of that baker's flour containing 27½ parts per million, how much would that be as nitrite reacting material?

A. It would be about five and one-half nitrite nitrogen.

Q. I want to ask you whether that baker's flour was bleached at your request by the baker or the miller?

A. Yes, it was bleached at my request; all the bakers grades were bleached at my request.

Q. Now, have you made any experiments yourself, Prof. Alway, of exposing flour to air to ascertain if it would take up nitrite reacting material from the air?

Mr. Butler: I think that is not redirect.

The Court: Well, go on.

A. None except in Kansas City.

Q. Now, well I will say prior to coming to Kansas City?

A. Oh, I had one sample setting out doors in the window ledge, but that is only one.

Q. Now in these flours that you stored in your laboratory?

A. They were in the store room; we do not keep flour
2314 often in the laboratory.

Q. Now these flours, were they loose or exposed or otherwise?

A. They were in very heavy paper sacks, made very heavy at my request, inside of cotton sacks, and the hole was tied up at the top with a strong twine.

Q. Now you were asked and gave some answers to Mr. Butler with reference to the action of 500 cubic centimeters and 1,000 cubic centimeters of peroxide of nitrogen darkening the flour and ruining it, and so forth. Can you give us in a general way to what extent of over-treatment of flour that would represent as compared with treating flour with this Alsop process in the manner in which we have had it testified here?

A. Well, taking this sample that is seized, I would say it was like running it through 50 times.

Q. Something like running it through fifty times?

A. Fifty to a hundred times, yes, through the agitator that many times, assuming it took up oxides nitrogen every time to the same extent.

Q. That flour, as I understand it, was ruined as a flour?

A. Oh, yes, ruined.

Q. Now you were also asked as to getting some increase in the acidity in flour, and I will ask you how that was done?

A. Well, that was where I used very large quantities of peroxide, the same as where I get the color to darken and all the other properties to change.

Q. This is where you use very large quantities?

A. Extremely large quantities, yes, sir.

Q. Now I want to ask you if you will kindly read the whole paragraph containing the statement which Mr. Butler put to you yesterday as to aging, if you have it?

A. The statement made in the address at the millers' banquet?

Q. Yes, just read that paragraph.

Mr. Butler: I would like to see it, if your Honor please.

A. I am reading from my manuscript.

The Court: How long a statement is it?

Mr. Elliott: It is a short statement.

2315 The Court: Go on.

Mr. Butler: Unless it relates to the subject matter, that which I read, it may be some advertisement, I don't know.

The Court: Go on.

A. (Reading) "It is necessary to recognize in view of what knowledge we have that it is nonsense to speak of bleaching flour by means of nitrogen peroxide as aerating or aging or purifying. I can easily conceive of the natural whitening or bleaching of flour being due to nitrogen peroxide or nitrous acid, but many other explanations are as probable or even much more probable."

Mr. Butler: Go on, read the rest of it.

Mr. Elliott: That is the whole thing.

Mr. Butler: Read the rest and the connection and complete it.

By Mr. Elliott:

Q. Is that the whole paragraph?

A. That is the whole paragraph.

Mr. Butler: That does not include what I read.

A. What you read as I remember began in the middle of the sentence.

The Court: If it does not, it can be brought out on recross examination. Go on, Mr. Elliott.

By Mr. Elliott:

Q. I will ask you, Prof. Alway, if at the time you made this statement which you have quoted, you were aware of the existence of nitrous acid or peroxide of nitrogen in the air?

A. No I was not.

Counsel for Libelant objects to the question as immaterial and irrelevant.

The Court: He may answer.

A. No, I was not aware of it.

Q. I understood you to say in answer to a question from Mr. Butler that the talk of aging flour by bleaching was nonsense, I will ask you in what sense you used the word "aging"?

Objected to as immaterial and irrelevant.

The Court: Well, he may answer.

A. I was using it there in the sense in which it is commonly used, allowing lapse of time for the flour becoming older or whatever it is; what I am arguing for was for the substitution of the term bleaching everywhere—

2316

Mr. Butler: I object to what he was arguing.

The Court: That is not an answer.

Q. Did you complete your answer, Mr. Alway?

A. Yes, sir.

Q. Now what was the age of the flour that you used in making experiments recorded in your bulletin?

A. Most of them were made from wheats about six months old, and the flour about a month or two months after milling, the most had not been—

The Court: Now that is an answer; what's the use of going on with a diatribe?

A. I said most of them, I was giving the other—

The Court: All right.

A. The flour of which we had the larger sample used for stock experiments, had been harvested a year and a half before and had been milled just about six months before.

Q. Have you made any experiments or observations to determine if the bleaching of flour, especially new wheat flour, imparts to it the qualities of the natural aged flour?

A. I made no—

Mr. Butler: I object to that as not redirect.

The Court: He may answer.

A. I have made none.

Q. Are you familiar with differences between the new flour and the naturally aged flour?

Mr. Butler: I object to that as cross-examination of their own witness.

The Court: It certainly is, but he may answer.

A. I am not.

Q. Can you yourself distinguish between a new flour and a naturally aged flour? A. I could not.

Q. Did you ever do any baking, Prof. Alway?

A. I never did.

Q. Did you ever make any flour into dough for baking?

Mr. Butler: I object to that as calculated to discredit the statement of their own witness; he came here and says this claim of aging is nonsense.

The Court: Sustained the objection.

Q. I will ask you if in your answer to Mr. Butler referred to above as to aging, you intend to commit yourself to
2317 the view that bleaching by the Alsop process can not impart to flour the qualities that are obtained by natural aging?

A. I did not intend to commit myself to any expression of opinion on that point.

By the Court:

Q. You have no opinion? A. I have no opinion.

Mr. Butler: He just thinks it is nonsense, that is all, used the term.

By Mr. Elliott:

Q. Dr. Alway, I will ask you if in your judgment there are any compounds in flour which by the addition of nitrous acid or nitric acid in the concentration that would be present when flour is bleached by this Alsop process, that would produce nitroso or diazo compounds? A. There are not.

Q. Dealing with the flour in suit I want to ask you if in your opinion here are any nitro nitroso diazo or Xantho protein compounds in this flour?

A. In my opinion there are not.

Q. Now you were asked in reference to the experiment performed by Dr. Hulett with bread and some liquid. Will ordinary yeast bread, made from either bleached or unbleached flour, and giving a reaction for nitrites, give the same reaction with the water removed from the bread in any other way?

Mr. Butler: I object to that as not redirect and opens up a new subject and will take us off into the realm of yeast and saltpetre of which this witness has not yet treated.

The Court sustained the objection.

Q. Assuming the reaction, does such a reaction in your judgment necessitate the presence of free nitrous acid as such in the original bread? A. No.

Q. Please give your reasons for that conclusion?

A. There are always organic acids present in the bread, and the nitrite in contact with the organic acid moisture, under reduced pressure, liberates the oxides of nitrogen, they passing into the water or with water would give the nitrite reaction.

Q. I ask you if in your judgment such an experiment would be conclusive proof that this bread would contain free nitrous acid?

Mr. Butler: I object to that as asking this witness to pass upon the credibility of other testimony in the case.

2318 The Court: Well, he may answer.

A. I would not.

Q. Please give your reasons for that opinion, Prof. Alway?

A. Why, as I said before, the organic—

Q. Oh, that is the same—well, all right. What action takes place when free nitrous acid is heated say near to the boiling point of water? A. It decomposes.

Q. What is the temperature in bread making?

Mr. Butler: Objected to as not redirect, not an expert, not a baker.

Q. Do you know the temperature?

The Court: He may answer.

Q. In bread making, if you do.

A. A little below the boiling water, a little below 212 Fahrenheit.

Q. Just one other question. Are mineral nitrites as found in water and naturally in plant tissue destroyed by heat?

A. They are not.

Q. That is all.

Recross-Examination

By Mr. Butler:

Q. What is the baking temperature?

A. The temperature of the oven, or the temperature inside of the loaf, you mean?

Q. I don't care which; give them both.

A. Oh, about 400 to 500 fahrenheit, the baking temperature.

Q. The boiling point is 212?

A. Yes, well, that is the loaf temperature inside.

By Mr. Elliott:

Q. I did forget one question, I will give it to you, it is there, I had it on another page and I overlooked it. I want to ask you, are these diazo-compounds stable or unstable?

A. Very unstable, broke up very easily.

Q. And as to nitro starch, is that a powerful explosive?

2319 A. It is a powerful explosive.

Q. That is all.

By Mr. Butler: (resuming).

Q. Now when did you first find out there was nitrogen peroxide or nitrous acid in the air?

A. Regularly, I think when I came down here. I think Dr. Marshall—

Q. When did you make this speech a quotation from which you read in redirect examination?

A. January 29, 1908.

Q. What do you mean by the natural whitening of flour?

A. The loss of color of starch.

Q. The loss of color on starch. In that speech some year or two before you knew there was any nitrous acid or nitrogen peroxide in the air, you used this expression: "I can easily conceive of the natural whitening or bleaching of flour being due to nitrogen peroxide and nitrous acid." Now where do you think that nitrogen peroxide or nitrous acid would come from on the natural bleaching.

A. It came from the electric storms or combustion anywhere, not exactly an essential constituent, it might be possible.

Q. Now you say you then meant that this natural whitening was due to nitrogen peroxide; that is, you said you could conceive of it?

A. I could conceive of it.

Q. That is, think of it? A. Yes, sir.

Q. And the nitrous acid, you did not mean the nitrous acid or nitrogen peroxide in the air then; you did not because you didn't know there was any in the air then?

A. I did not know there was any there, no sir.

Q. Now storing in a warehouse, you knew it would whiten it?

A. I didn't know that, I accept that though, as a matter of knowledge.

Q. I know, but that is what you were talking about?

A. Yes, sir.

Q. Now where did you think that that natural whitening would come from in the winter time?

A. In the winter time?

Q. Yes, when it is froze up and we don't have any lightning?

A. Well, I don't remember where I would imagine at that time where it came from. It came from thunder storms, 2320 as I say, and came from combustion and plants everywhere.

Q. It would not come from thunder storms in Nebraska in January and February?

A. No, it would not come from thunder storms.

Q. Well, where would it come from; it would be in the air, wouldn't it, if at all?

A. It had to be in the air to get in contact with the flour.

Q. Now let me see about this— A. Yes.

Q. You stated then that this natural aging, this artificial aging being the equivalent of natural aging, in substance, was nonsense?

A. I speak of it as that.

Q. Yes, perfect nonsense?

A. Yes, sir, I speak of it as that.

Q. Then you begin to tell us in order to pull down the effect of that, in your redirect you were asked when you found out there was nitrogen peroxide in the air, and you said since this trial, or something like that, and now you say that when you made this speech in the very sentence in which you said it was nonsense, you said that it could be thought of?

A. Yes.

Q. Can easily conceive of it? A. Yes.

Q. Natural whitening or bleaching of flour being due to nitrogen peroxide or nitrous acid. Now having heard that, is it not true, are you not reminded that it is true that you did know that there were trace of nitrites.

A. I know there were traces of nitrites? I put that in the bulletin about traces of nitrites.

Q. In the air?

A. Oh, yes; I gave that considerable length in the bulletin, not nitrites but nitrogen peroxide.

Q. Do you know there is nitrogen peroxide in the air yet?

A. Well, I accept it from Dr. Marshall's testimony and the others.

Q. So your explanation—

A. It would not absorb a nitrite through paper.

Q. So this whole thing is a difference between NO₂ and nitrous acid and nitrogen peroxide, is it?

A. Which, here?

Q. Yes, your whole explanation then, of this nonsense that it distinguishes between nitrogen peroxide and nitrous acid and the nitrites in the air, you knew there were nitrites in the air? A. Yes.

2321 Q. All the time? A. Oh, yes.

Q. And you know that it was by means of the nitrites either immediately or directly that it could be thought of that aging took place?

A. Oh no, not nitrites, it would have to be in the form of NO₂ for that.

Q. Did you ever see any free nitrous acid?

A. Oh no—Oh, free nitrous acid?

Q. Yes, sir.

A. Well, we speak of it as being free in solution.

Q. I am not asking about how you speak of it. I am asking you now with scientific accuracy if you ever saw free nitrous acid?

A. I saw it in solution, yes.

Q. Is it free when in solution?

A. Free but not solid.

Q. There is no such thing?

A. I don't know it as a solid compound.

Q. So then what you meant in your answer to Mr. Elliott was, you never knew there was nitrous acid in solution floating around in the air, is that it?

A. Yes, nitrogen peroxide there.

Q. Now as a chemist you know, do you know, that there were nitrites or traces of nitrites, one-fourth of a part to the billion, something of that sort, in the air?

A. At that time, yes, I know there was nitrites, observed—knew nitrites since I have been a chemist.

Q. And you know they came from NO₂?

A. No, we did not know where it came from but knew of it.

Q. Didn't you say the flaming arc, lightning storm produced NO₂?

A. Oh, no, I do know it forms in the evaporation of water.

Q. It forms directly, you knew the lightning form NO₂?

A. Yes, I expect.

Q. You knew there was ammonia in the air?

A. Yes, sir.

Q. And you knew there was more than enough ammonia to take up all the NO₂ that could be formed?

A. I never calculated that.

Q. You knew that? A. I presume that.

Q. You knew the ammonium nitrite is a most harmless innocent nitrite, don't you? A. Yes.

Q. You know that perfectly, don't you? A. Oh, yes.

2322 Q. And you know it is a perfect humbug to compare that kind of a nitrite with some of these poisonous nitrites that you describe as making men afraid, don't you?

A. No, the kind of ammonium nitrite I would expect to be the same thing as the NO₂, the same as in the other.

Q. But the proportion is very little?

A. The proportion in the air.

Q. The ammonium nitrite is considered innocent, isn't it; that does not give you vertigo and knock you out in the way you describe these nitrites in the flour?

A. I would expect it to follow just as much from the sodium nitrite.

Q. You would? A. Just as much.

Q. Will ammonium nitrite bleach flour?

A. I would not expect it, no.

Q. Well, you know it won't don't you?

A. No, I have no idea but I would not expect it would at all.

Q. You are just as sure of it as you are you are sitting there?

A. I am fully satisfied of it.

Q. Wouldn't have any tendency to bleach flour at all?

A. Would not be considered to have any tendency to bleach flour.

Q. And it is the ammonium nitrite that is formed in the air just like that which sends the lightning, springs and stroke that makes the NO₂? A. Well, no, I would not think of that.

Q. Well, before it gets down, before it gets to the ground, and you will tell this jury that you know that ammonium nitrite does not bleach flour, don't you?

A. No, I don't know anything about that; I never tried it.

Q. But without trying it, you know that, don't you?

A. I don't know it, no, but I accept it.

Q. You believe it, don't you?

A. That is my opinion of it, yes.

2323 The Court: By way of supplement and modification of what I made of record yesterday, owing to the conference in court this morning between counsel on both sides, before the jury appeared, and before there was a stenographer, there will be no more millers called as witnesses on the part of the claimant, there will be no more bakers baking either commercially or experimentally, called by the claimant. I was in error yesterday as to the number of scientists, I should never have allowed the government to have quite as many, but having allowed it, for the purpose of treating both sides as nearly equal as I know how to treat them the claimant or defendant will be allowed to call four scientists, if he so elects, in addition to what have been called and by scientists I mean physicians or chemists, or scientists undertaking to qualify in

any other form, and four only. I do this because I presume that each side can call innumerable large numbers here upon the respective sides, and I think this matter must come to an end. You call your next witness as a scientist.

Dr. Ralph W. Webster, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Q. Give your full name, Dr. Webster?

A. Ralph W. Webster.

Q. Where do you reside? A. Chicago.

Q. Will you state your qualifications?

A. I am a graduate of the University of Chicago in 1895. Graduated from the Rush Medical College in 1898; then went to the University of Chicago and studied for the doctor of philosophy degree which I received in 1901; during these periods I was fellow in chemistry in Rush Medical College and fellow in physiology at the University of Chicago; later I became assistant in physiological chemistry and pharmacology at the University of Chicago, and then became instructor in pharmacology. In 1903 and 1904 I was abroad in the laboratories in Vienna, and in Berlin, and Frankfort, and am now professor of pharmaceutical therapeutics in Rush Medical College, and am devoting my time to the practice of medicine as well as to specializing in physiological chemistry and toxicology.

Q. Have you made any examinations of bleached flour as to acid content? A. I have.

Q. I will ask you if as a result of your investigations you are able to say whether there are any free nitrous or nitric acids in flour bleached by this Alsop process?

A. My opinion is that there are absolutely no traces of free nitrous or nitric acid, in bleached flour.

Q. What test, if any, did you employ to make this determination?

A. Tests were made, there was one similar to that stated by Prof. Alway, namely, the reaction with diamethyl amino azo benzol, which detects the presence of a mineral acid whether it be nitric or nitrous.

Q. What is the action of nitrous and nitric acid on protein?

A. The action of nitrous and nitric acid upon protein material depends upon many factors, depends upon the concentration, depends upon the temperature, depends upon the amount of flour, as regards the amount of nitric acid, and depends upon the conditions of the flour so treated. The usual action upon the protein material, as I see it, of nitrous acid, is the

abolition of nitrogen which has and can have only one meaning, namely the action of the nitrous acid upon the amino groups, forming hydroxyl compounds. There are other actions which take a great deal of time to explain in detail.

2325 Q. What is hydrolysis?

A. Hydrolysis from the chemical standpoint is the splitting up or the breaking down of the substance under the influence of acids, of alkalis, of ferments, of heat, and various other agents which results in the splitting up of complex molecules into simpler molecules by the addition of water.

Q. I will ask you from your judgment if any hydrolyses would occur under the influence of nitrous or nitric acid in such quantities as have been assumed to be present in this bleached flour?

A. In my opinion absolutely no hydrolyses would be produced.

Q. I want to ask you to detail the nature of the nitrous acid, what happens when nitrous acid acts on protein?

A. Well, we have the possibility of the formation of many substances, depending upon the concentration. I am answering, would like to answer the question.

Mr. Butler: I think I will object to his enlarging upon possibilities.

The Court: Please answer the question.

A. The effect is variable.

Q. Now we have had some testimony here as to the formation, or the possibility of the formation of diazo and nitroso and nitro compounds in flour, or bodies perhaps I should say. Now assuming that hydrolysis would occur in your judgment, would the amino acids be changed into diazo bodies, or nitroso or nitro bodies, by the action of nitrous acid in the concentration assumed to be present?

Mr. Butler: We object to that. There is no foundation laid for his qualification; he is not an organic chemist, but he is a toxicologist and physiologist chemist.

The Court: He may answer.

A. My opinion is they would not.

Q. What is sodium nitrite, doctor?

A. Sodium nitrite is a combination of the metal sodium and the original NO_2 , it is a salt, of nitrous acid.

Q. Is it found in any of the organs of the body?

A. Yes, it is found in many.

2326 Q. If so, which ones.

Q. It is found in many of the organs of the body?

Mr. Butler: I object to that as immaterial and irrelevant.

The Court: Well, go on, Mr. Elliott. There are a great many things here that are not in controversy, I take it, what is the use of every time we get a scientist on the stand to have a lecture and address from him in some of these sciences. If it is not in controversy why does he have to go on and give us a description of that? Is that in controversy?

Judge Scarritt: We assume it is.

The Court: Mr. Elliott.

Mr. Elliott: I simply want to lay the foundation for his opinion.

The Court: Go on and do it, it seems to me like a frivolity, but may be I am mistaken.

A. Sodium nitrite is found in various organs. It has been shown definitely to be present in the white matter of the brain, in the lungs, in the bronchial tubes, in the lymphatic glands, the cervical glands, the various maxillary glands, and other fluids of the body, especially the saliva.

Q. I will ask you if in your judgment a medicinal dose of sodium nitrite distributed over a year, can produce harmful effects on the body.

A. I should say not.

Q. Have you given sodium nitrites to any person to determine the action on blood? A. I have.

Q. In what quantities and to whom did you give it?

A. I have taken two grains myself; have given it to four other people, and have tested the blood for the presence of methemoglobin and have been able to demonstrate there is no methemoglobin present.

Q. What means did you employ to determine the question of the presence or absence of methemoglobin?

A. My method was the use of the micro-spectroscope which will detect the presence of hemoglobin from one blood corpuscle.

Q. I will ask you if in your judgment the system has any means of dealing with nitrites taken into it?

A. The system has several means of handling nitrites
2327 which may be taken into it.

Q. Will you kindly name them.

A. One means by which the nitrites are taken care of is the oxidization to nitrites; the second means is the action of denitrifying bacteria; the third means is the action of urea upon nitrous acid.

Q. Is urea an amino compound?

A. Yes, it contains two amino groups, yes, sir.

Q. Well, I might ask you what is urea?

A. Well, urea is a compound consisting of two amino groups linked to CO. It is formed by breaking down of protein, of the several of products protein; it is formed in many tissues of the body, found in various organs, etc.

Q. Now, how does urea act, if you know, in destroying nitrites?

A. The urea in the presence of acid and nitrites will decompose the nitrous acid, form by the action of the acid upon the nitrite later on nitrogen carbon dioxide in water, and the urea would thus be absolutely decomposed, at the same time the nitrite is decomposed.

Q. Have you made any experiments to determine whether nitrites are destroyed in the presence of urea?

A. Yes, I have.

Q. Please relate what they were?

A. I have taken a solution of sodium nitrite of definite strength, have added hydrochloric acid, dilute hydrochloric acid.

Q. Now start over again.

A. Taking a dilute solution of sodium nitrite and added dilute hydrochloric acid and applied the Griess reagent. In the presence of nitrites or nitrous acid the Griess reagent reacts, showing, giving the characteristic red color. If to this solution urea be added, and the Griess reagent applied, we get absolutely no reaction with the Griess reagent.

Q. Have you exhibits resulting from that?

A. Yes, sir.

Q. Will you please produce them?

A. This is a solution of—

Q. Let me have those labeled first. (The exhibits were respectively marked by the stenographer "Claimant's Exhibits 278 and 279.") Now will you please first tell us what "Exhibit 278" is, and then what "279" is?

A. "Exhibit 278" is a dilute sodium nitrite solution treated with hydrochloric acid and Griess reagent, giving the
2328 characteristic pink coloration. This color has slightly faded since the test was made yesterday, but still proceeds. The "Exhibit 279" is the same solution with urea added and the Griess reagent also added, showing that there is absolutely no reaction for the presence of free nitrous acid or of nitrites; they have been decomposed by the presence of urea.

Mr. Elliott: I introduce these in evidence.

Witness: I have further experiments.

The Court: Don't be volunteering any address here to us.

Q. In your judgment do nitrites or nitrite reacting material disappear through the process of digestion?

A. Yes, sir.

Q. What experiments, if any, have you performed in this regard?

[—] I have taken the bleached flour in suit and have made suspensions in water and have treated it with both the pepsin hydrochloric acid and with the pancreatic digestive fluids, and have allowed the fluids to act in the incubator at different temperatures for varying periods of time. I have been able to show that—

Mr. Butler: I object to what he is able to show, what he did and saw.

The Court: What he is able to show is simply an argument. Sustained.

A. It does show that during the digestion the nitrite reacting material absolutely disappeared in the course of half an hour under the influence of the pepsin hydrochloric acid. Under the influence of the pancreatic fluid the action was somewhat slower and had not disappeared at the end of an hour and a quarter. It disappeared, however, by allowing it to stand, I couldn't say the exact time at which it disappeared because I left it over night, the reaction at the time was not such that I could observe it at the point but it had not disappeared in the hour and a quarter under the influence of pepsin or of the pancreatic extract.

Q. I will ask you, doctor, to give us your definition of a poison?

The Court: Proceed.

A. I am trying to formulate my idea.

By the Court:

Q. Don't you know.

2329 A. I have a notion I do but I want to get a definite statement. A poison is a known organized substance, it may be either organic or inorganic, which may be introduced into the body or may be formed within the body, which owing to its chemical properties exerts either a harmful influence or exerts influence sufficient to cause death.

Q. Is there any substance known in your opinion that is inherently a poison in all dosages?

A. I know of no such substances.

Q. Are many so-called poisons widely used by the medical profession as remedial agents?

Mr. Butler: I object to that.

The Court: I suppose everybody knows they are, but give us the benefit of your learning.

A. They are.

By Mr. Elliott:

Q. Will you kindly name some of them?

Mr. Butler: I object to that as immaterial and irrelevant.

The Court: It seems to me that is wholly commonplace, but go on, strychnine, arsenic and so on, name the balance of them.

A. Corrosive sublimate, aconite, among others that I might name, prussic acid.

Q. Is nitric acid ever used medicinally? A. Yes, sir.

Q. Is nitro-hydrochloric acid ever so used? A. Yes, sir.

Q. I will ask you doctor, if in your judgment, chemical reactions with the test tube are the same as these occurring in the blood within the body?

A. They are not comparable in many respects.

Q. Assuming that the flour in suit was bleached by the Alsop process and as a result of such bleaching said flour contains 1.8 parts per million of nitrite reacting material, and assume that in the baking process none of that material disappears, I will ask you your opinion as to whether the constant daily eating of such bread or bread made from such flour could, in your judgment, be harmful to the health or deleterious?

A. In my judgment it could not.

Q. Now on the assumption of the last question I will ask you if in your opinion such an amount could have any [appreciable] effect of any kind upon the system?

2330 A. None other than the effect produced by the unbleached flour, the effect would be comparable to that of unbleached flour.

Q. Well, I mean on the basis of the nitrite contents?

A. No, there would be no effect of any sort that I could conceive of.

Cross-Examination

By Mr. Butler:

Q. Doctor, are you an organic chemist?

A. No, not as such.

Q. Is there such a thing as an organic chemist who is not an organic chemist as such?

A. Quite a number, I think there is quite a number of organic chemists that are not—quite a number of men that are in different branches of organic chemistry that do not profess to be organic chemists as such.

Q. You are one of them?

A. I am simply in that phase of organic chemistry that deals with physiological chemistry.

Q. Does physiological chemistry have to do with flour?

A. Yes, it has to do with the action of flour in great detail.

Q. Does physiological chemistry have to do with flour?

A. Yes, sir.

Q. Why didn't you answer that way first instead of saying it has to do with the action of flour?

Counsel for the claimant objected to the argument with the witness.

Mr. Butler: He was trying to avoid me.

The Court: You may answer.

Q. Why didn't you answer that way at first instead of saying it has to do with the action of flour. Now flour and the action of flour are two different things, scientifically, are they not?

A. They are as a matter of fact different things; I was simply trying to explain why the physiological chemistry had to do with flour but does not have to do with the bleaching of flour, but has to do with its action. I could not answer any other way.

Q. Anything to do with the milling of flour?

A. Everything.

Q. Or the analysis of flour?

A. In a sense, the analysis of flour, yes.

2331 Q. In what sense?

A. Why, flour comes under the head of food; physiological chemistry has to do with foods, their action in the system.

Q. Physiological chemist is a food chemist?

A. No, not in that sense, not in the sense of direct food chemist.

Q. Physiological means the action of our organs, that is all?

A. Yes, sir.

Q. You have to do with that, don't you? A. Yes, sir.

Q. That is your profession? A. Yes.

Q. You don't have to do with the inspection of foods?

A. No.

Q. Or the analysis of foods?

A. Oh, yes, I make quite a number of analyses of foods.

Q. Is that your profession?

A. Why, it is a portion of it.

Q. And you have to do with the value of foods upon people?

A. Yes, sir.

Q. And you have to consider whether or not poisonous substances are good for people to eat with their foods?

A. Oh, yes.

Q. What have you determined about that?

A. I know in general the kind of the various principles in food; I have done quite a number of experiments. I have done considerable work on the amount of—

The Court: He didn't ask you for that.

Q. I ask you whether you reached any conclusion as to whether poisonous substances in food are good things or bad things? A. Yes, I reached a conclusion.

Q. What is your conclusion?

A. My conclusion is that poisonous substances are bad under certain conditions and harmless under others.

Q. Generally never good?

A. It depends on the amount present.

Q. Now you think it is all right to leave it to the baker, grocer, the millers and all the persons who prepare foods for human consumption the right, if they see fit, to add minute substances, which if added in larger quantities, or large substances, would be harmful.

Counsel for claimant objected to the question as calling for the wrongful conclusion of the witness.

2332 The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. That would depend in my opinion entirely on whether the substances so used would have any deleterious effect in the amount present.

Q. Then let us take formaldehyd in milk?

Counsel for claimant objected as having nothing to do with the case.

The Court: He may answer.

Q. Would you approve from the standpoint of health of the addition of formaldehyd to milk?

Same objection.

A. It depends entirely on how much I could add or how much was added.

Q. Not enough to show symptoms of poisoning your baby who drank the milk or to the most delicate person: I want you to be perfectly fair with me, because I want you placed upon

this food question. Now let me be perfectly fair, formaldehyd in large quantities is poison, isn't it? A. Yes, sir.

Q. Now then formaldehyd—it is an embalming fluid, isn't it? A. It is so used.

Q. It is used as a preservative on milk, for milk, isn't it?

A. Yes, sir.

Q. And cream, now then we will assume that the milkman for the purpose of making his cream or milk stand up a little longer, it is artificial aging he will call it for short, put in a little formaldehyd but so small an amount that the most feeble person in the community might take the milk in ordinary consumption as milk is consumed and that no doctor whether skilled or pharmacologist or toxicologist could observe any harmful effects on the public or the person, whoever it was, from the formaldehyd, in such case from the standpoint of health would you approve or would you disapprove of the addition of the formaldehyd, am I right?

Same objection by claimant.

2333 Q. Am I right about that?

A. I would not disapprove of it if it would produce absolutely no effects such as you assume.

Q. Well, I mean no observable effects?

A. Well, no observable effects and I mean when I answer that question, I mean effects which could be demonstrated, I don't mean your observable effects—

Q. I mean observable to those who know how to look and observe? A. I should say it was not deleterious.

Q. All right, and so it would be all right to add these poisonous nitrites to baby's bread, if they were so minute in quantity, Dr. Webster, that the most skilful observers in your line would not observe any nitrite sign or symptom from the use of the nitrites in the bread?

A. Well, assuming that the nitrites are added and they are present in the small quantities—

Q. They are added and they are present?

A. In minute quantities I should say that it would be perfectly justifiable to give it to children.

Q. Yes. Well, now, let us take an ordinary breakfast for an ordinary wayfaring lawyer, and we will assume that he orders some oatmeal with cream; there is a little formaldehyd in that, not enough to show any signs at all; that would be all right in your opinion, would it?

A. It depends on the amount.

Q. Well, I mean there isn't enough in connection to show any signs on the lawyer; we are assuming now that the lawyer is off trying a law suit, and he is getting these things to eat, and there is not enough so that all of the pharmacologists and the

toxicologists here in court could not observe any nitrite symptom on the man, so you would say then that there was no poison added, and it would be all right to add it from the standpoint of health as an advisor touching our health?

A. I remarked before that I thought it would with regard to milk.

Q. All right. Now we'll say that he orders some wheat cakes with some syrup and butter, that wheat cakes are [mak] out of nitrite bearing poisonous nitrites from bleached flour, also have some nitrites added by the bleaching process, and some sulphates added in the syrup and borax and coal tar in the butter to cover it. Now these are things that you
2334 know have been used, do you not, in wheat cakes, with syrup and butter, nitrites the bleached flour, the nitrites of the bleached flour, the sulphate, borax and the coal tar in the butter, you know they are used for preservation, and no one of them can be characterized in and of itself per se as a poisonous substance. A. Not that I am aware of.

Q. In a large quantity, in a sufficient quantity it is, is it not? A. Yes.

Q. Now we have the formaldehyd in our milk and cream, what do you say about nitrites, sulphates, borax and coal tar dye, that are in wheat cakes and syrup?

Same objection by claimant.

Q. That is, the quantity of each being so minute that the greatest chemist and analyst and pharmacologist and toxicologist ever known could not observe any injurious effect upon the lawyer who is having the breakfast, would you say from the standpoint of advising as to health that that was proper to add these things to the pancakes and syrup and butter?

A. Well, I can't answer that yes or no.

Q. Do you want to make a speech about it?

A. No, I don't want to make a speech.

Q. Well, let us have your answer? A. Yes and no.

Q. Yes and no, well which one would you put out and which one would you put in?

A. I would answer it yes and no. I could not answer it either way. I simply cannot answer it without explaining. If I say yes, I must explain; if I say no, I must explain.

Q. Well, go on and explain, let's get through with it?

A. My idea is that if these substances are small enough in amount, it makes no difference if you take forty, you may have the possibility quite as marked that you may get one offsetting the action of another as you may get the effect of one accelerating the amount of another, and no one can say without trying it. The effects of borax have been tried and disputed the world over. The effects of benzoic acid have been

tried and have been disputed, and we have all of these poisons in small amounts and no two bodies examined them who have agreed on them.

2335 Q. Now I gather from your views that if the amounts be small enough it would be all right?

A. That is my view.

Q. Yes, all right. Well, now, we will suppose he ordered some bacon and eggs, and there were some nitrites and nitrates in the bacon and eggs too, still so small an amount that on a law suit to condemn the bacon and eggs every honest doctor could swear no poison added, would you still swear that it would be all right?

A. I would say it would make no difference how much nitrate you added in the case within limits.

Q. Or nitrites? A. Yes, sir.

Q. It would not make any difference how much?

A. Well, within limits, I am speaking about the same limits.

Q. Now he ordered some coffee with sugar we'll say, and a little lead chromate to make the coffee look good, I think it is bleached with formaldehyd, sulphur dioxid. Now do you think that the coffee and cream with the lead chromate and formaldehyd, if we have formaldehyd in the cream, and the nitrates and nitrites, and sulphates and borax and coal tar dye in our pancake, and bacon and eggs, more nitrites and nitrates, now if we come to the coffee and add a little lead chromate, so minute that every toxicologist from Rush Medical College and ever other reputable scientist should say it was so minute that it was no poison, do you still approve from the standpoint of health of adding that thing for food?

Same objection by claimant.

The Court: Go on and answer.

Q. Well you can keep on that way.

Q. No, I am going to keep on, you need not worry about that, I am going to keep on for the whole day?

A. I should say that you could add lead chromate in small quantities it would have no effect.

Q. Now what will we do with all the rest of the poison?

A. I am not assuming anything but the coffee.

Q. I am assuming the whole meal; I am taking the whole meal.

The Court: Now he has had the oat meal with cream, and the wheat cakes with butter and syrup, and bacon and
2336 eggs, and we have a little lead chromate in our coffee.

Same objection by claimant.

A. If you use lead chromate in small quantities, and not enough to produce any deleterious effect to be observed by anybody, I should say not.

Q. Then we order a glass of butter milk to clear our throat with for work in court, and a little borax in the butter milk, not enough to make the lawyer sick or to show there is anything wrong with him on account of the borax; now you think that would be all right in that same breakfast?

Same objection.

Q. Do you say it was not large enough to give him spasms or show any observable effect to the keenest eye of the greatest chemist in your line?

A. I should say that he could not have had such a breakfast; I say that he probably would not have had such a breakfast and so could not have received the substances.

Mr. Butler: I move to strike it out.

Q. This lawyer was foolish enough to take that butter milk for breakfast, I do it often?

A. It would not injure him.

Q. No personal equation entering into that?

A. Certainly is.

Q. You think the personal equation was back of it?

A. I am assuming a large number of things that I have not mentioned in my answer.

Q. Now then add some bread and butter too just there, and some nitrites and nitrates, borax and coal tar dye, in the bread and butter, you think that would be all right and harmless, do you think these things were not there in large enough quantities to give a man a spasm or show symptoms?

Same objection.

The Court: He may answer.

To the ruling of the court claimant then and there duly excepted.

Q. Any one item?

A. Large enough to produce spasms or give a man symptoms of what?

2337 Q. Of poisoning, or injury or deleterious action so that it could be observed by the keenest eye of the keenest scientist the world ever knew?

A. My position, Mr. Butler, I would like to explain my position.

Q. No, I want you to answer; I will give you a chance to explain when we get through the whole of it.

Judge Scarritt: He has a right to explain.

The Court: Answer the question.

Witness: I can not answer it, Judge, on the assumptions he is making, so much at one time.

Q. Why, I want to understand, it is if I eat five or six things for breakfast—that is what he is getting at, what he is getting at, a poison in any one of those things is not enough to be harmful, the question is now whether you keep adding these different things for breakfast, we all sometimes do, when he got through with his breakfast, what would he have?

Same objection.

The Court: That is the question as I understand it.

Judge Scarritt: I understand it is on the assumption that the whole thing would not do anybody any harm.

Mr. Butler: Oh, no, the whole, each would not, but we can only condemn one thing in the pure food court at once.

The Court: I understand this, and I have observed this, these scientists some say that strychnine is poison, some say strychnine is not poison excepting as concentrated and in sufficient quantities, and so with other poisons. Now Mr. Butler has commenced with the oat meal and cream with some poison in it but not enough of itself to hurt, and then he takes pan cakes with butter and syrup; then he takes eggs, and he takes bacon, now then, and coffee, now then he finally quits, he finishes all his breakfast, or turns to take some bread and butter, I don't know what else. Now when you get through with an ordinary meal for a healthy man, with a good appetite, the question is what are you going to have when you get through.

2338 Judge Scarritt: I want to make an objection to the question as stated by the court and by the gentleman on the other side, as absolutely irrelevant, incompetent and immaterial to any of the issues in this case, and involves an analysis of every ingredient in every piece of food that has been mentioned, and the action or comparative action of one poison upon another, or one ingredient upon another and is an unfair question and an unfair illustration, as applied to the issues in this case with reference to this bleached flour.

The Court: Objection is overruled.

To which ruling of the court claimant then and there duly excepted.

By Mr. Butler:

Q. Answer. A. I cannot answer yes or no.

Q. Why?

A. Because I would want to know what the effects of the small amounts, infinitesimal amounts, were upon one another. It would be entirely hypothetical in my answer as to whether this or that would be harmful, but assuming that each was not harmful, I could not say whether the things that you have mentioned, what you have mentioned would result in the increased activity of one substance or the combination of effects which might be harmful.

Q. All right, so because you don't know the effect of one poison upon the other, and the harmless upon the poisonous, and the poisonous upon the harmless stuff, you couldn't tell whether it would be safe to take all these things for breakfast or not; is that the idea?

A. Well, I have taken poisons for breakfast.

Mr. Butler: I move to strike that out.

The Court: It will be stricken out.

Judge Scarritt: I object to that.

Q. Now suppose, and let us go a little further, suppose with that same breakfast we had some apricot sauce with sugar, and some sulphites in that, but the sulphites were so minute that if we are condemning and try to condemn it in court as adulterated, that you and every other enlightened gentleman would swear that it was totally harmless and no poison
2339 added, would you say that it would be all right with that breakfast?

Same objection.

A. I make the same answer I have previously made, that I could not answer without some experimental evidence upon which to base my opinion.

Q. Do you think it is safe to give him a breakfast you cannot answer without experimenting with it, don't you think it is better to give him a breakfast you know is safe without experimenting?

Same objection.

A. I do not assume that we have breakfast such as you have.

Q. Well, I ask you to assume it; I do have those breakfasts.
[Q.] Would be unable to answer the question by yes or no.

The Court: Answer it any way.

Q. Answer it any way you like so that we can understand just what you are getting at.

A. Well, as I say my opinion is that the action of these minute—of these substances which are harmless may be increased by combination one with another, but as to the effect of such an experiment as you have mentioned, I could not say because I have no definite experimental evidence.

Q. Might it be possible for him to die?

A. I would hardly think it possible, no.

Q. Might create some illness?

A. It might cause symptoms, I don't think it would cause any marked disturbance any more than perhaps might cause gastritis or cause a little irritation of the stomach and bowels, which we get more than any other thing.

Q. Now lets take an ordinary breakfast, and each item in the breakfast contained some nitrites which are poisonous in sufficient quantities are they not?

A. Oh, yes, if you give enough.

Q. Well, in each there was not enough to be poisonous, in each one there was not enough to be poisonous, but there was just up to the danger line, that is where you could conscientiously swear it was safe, but you had four items for breakfast, and each one had nitrites in it, and if we are trying to condemn one or any one of them you could conscientiously swear that there was no poison in it because it was not enough; now if you had four times that, what would you say?

Objected to by claimant.

Q. Would you recommend that from the standpoint of health?

The Court: That is to say—

Judge Scarritt: We have got a right to make our objections here, your Honor, I would like to do it in the usual way.

The Court: Yes, you have, but you have no right to violate the repeated rules and orders of the court to make an argument.

Judge Scarritt: I am not making an argument, simply stating the objection.

The Court: State it.

Judge Scarritt: That this question is incompetent, irrelevant and immaterial and has no bearing upon the issues in this case with reference to this bleached flour.

The Court: The objection is overruled.

To which ruling of the court claimant then and there duly excepted.

A. I might want to know, in answering that question, whether Mr. Butler considers the danger line of nitrite—

By Mr. Butler:

Q. Well, we let you fix it, you say that it is safe in one quantity and dangerous in another, do you?

A. I say that this may cause poison in certain quantities, yes.

Q. And it is dangerous when it causes poisons, isn't it, to health? A. Yes.

Q. Now then I want you to assume, I don't know how much you think would be dangerous, but I want you to assume just as much as you can in each one of the four items up to the danger point, but just below it?

Same objection.

Q. The largest safe amount in each one, now assume that the largest safe amount of nitrite poison is in each one of four items of the breakfast.

Same objection.

2341 Q. And if we are trying to condemn either one the amount was just small enough so you could swear it was not poison at all, then I want to ask you if you would recommend the breakfast?

Same objection.

Q. Or consent to it or advise against it from the standpoint of health, if it had four times as much as the largest amount?

Same objection.

The Court: You may answer.

To which ruling of the court claimant then and there duly excepted.

A. I think if the breakfast had four times as much as the safe amount, the breakfast would be dangerous, because it is over the safe amount, be dangerous and possibly four times the part, which would be four times as strong.

Q. Would you condemn the breakfast?

A. Surely I would if it had any such amount as that in it.

Q. Now the fact that they were all the same kind of poison would not make any difference, would it?

Same objection.

The Court: He may answer.

A. Why, yes, it would make considerable difference.

Q. All right, so you would be willing—now let us say formaldehyd is poison in sufficient quantity? A. Yes.

Q. Now we will take formaldehyd in our milk, nitrites in our bread and pancakes, borax—is a poison too?

A. Anything may be poisonous if enough of it is taken.

Q. I know, but is it a poison, is lead chromate a poison in sufficient quantities? A. Yes.

Q. We'll take lead chromate in our coffee, now we'll take sulphites, now in each case there is not enough so that you would have to swear as a scientist that there was not poison, but just a safe amount, but we have formaldehyd and nitrates and lead chromate and sulphite, nitrites and sulphites. Now then I want to ask you whether or not a breakfast of that sort would in your opinion be wholly free from poisonous substances?

2342 Same objection.

The Court: He may answer.

A. Certainly, I guess you have assumed that each one of these substances is present up to a poisonous test?

Q. No, I said just below?

A. Well, just below the toxin test or below the test.

Q. No, I don't say the toxin test. I said just as much as there could be that would justify you as a conscientious scientist in swearing that it was not up to the poison at all?

A. Under such circumstances I should have to know the reaction the substances gave.

Q. And until you could know the reaction you would have to condemn the breakfast out of regard for the public health, wouldn't you?

A. I should not condemn it, I should wait and see what the effect would be what the results would be by experiment on animals.

Q. Yes, feed it to rats to find out?

A. Or other animals, could use rats you see.

Q. And if the rats got fat on the breakfast, then you would recommend it to my babies, would you?

A. Might if I had the chance.

Q. Well, you won't have the chance if I see you first, Dr. Webster.

At this point the further hearing of this cause was adjourned until 1.30 o'clock p. m.

Pursuant to adjournment, Court met at 2 o'clock p. m., Thursday, June 30, 1910, and proceeded further with the trial of said cause as follows:

Ralph W. Webster, resuming the stand, was cross-examined further by Mr. Butler, and testified as follows:

Q. I will ask you, Doctor, to give us your definition of a poison? A. Of a poison?

Q. Yes.

A. I may not be able to give it exactly as I gave it before, but I will try to give it, as nearly as possible. Poison is an organized substance, inorganic or organic, which may be introduced into the body, or formed within the body, and produces through chemical action or owing to its chemical action certain changes which may be detrimental, or may be sufficient to produce death.

Q. You think your definition is complete and satisfactory definition?

A. Well, it seems to be complete. The only thing that would perhaps be added, that could help it, any, would be that it must be assumed that the quantities—that certain quantities may not produce these effects; certain quantities may produce the effects; all owing to chemical action; within certain limits.

Q. Within the terms of your definition, isn't every substance known to mankind a poison?

A. Within certain limits, perhaps.

Q. Then, strictly within the terms of your definition, as you gave it to Mr. Elliott this morning—and my first question this afternoon was a verbatim repetition of his question which called out your answer, and your answer was practically a verbatim repetition of the answer you gave him; I have transcribed that question and answer. Now, I want to ask you, Doctor, whether or not the definition which you recited here this morning to the jury does not include every substance on the face of the earth, and if it does not, name one that is not included.

A. Well, my idea is there is no substance that is inherently a poison.

Mr. Butler: I move to strike that out.

The Court: That is stricken out.

Mr. Scarritt: Exception.

By Mr. Butler:

Q. I want you to answer my question, Doctor.

A. I would answer that, naming strychnine and arsenic—

Q. No, I object to that.

2344 A. You asked me—

Q. That is not the idea.

A. Strychnine, under certain conditions, is not a poison; arsenic under certain conditions, is not a poison; corrosive

sublimate, under certain conditions, is not a poison; hydro-cyanic acid, under certain conditions, is not a poison; sodium nitrite, under certain conditions, is not a poison.

The Court: What you mean is as to quantity and concentration?

The Witness: Yes, sir.

The Court: Only?

The Witness: Under certain conditions.

The Court: No,—You say “under certain conditions”. You mean quantity and concentration?

The Witness: Partly. Not only.

The Court: You mean some antidote?

The Witness: No, I mean no antidote. I mean under certain conditions of the body. Certain conditions of age, and certain conditions of well-being.

The Court: Well, I don't know what you are talking about. Let's get at this.

By Mr. Butler:

Q. Can you name any substance which is different from strychnine in that regard? [A.] You say strychnine is not a poison under certain circumstances. You can say that of every substance known to mankind, can't you?

A. Perhaps some substances ordinarily classed as non-poisonous substances will be poisonous, if sufficient were taken.

Mr. Butler: I move to strike that out.

The Court: That may be stricken out.

Mr. Scarritt: We save an exception.

By Mr. Butler:

Q. If you can say that strychnine, under certain conditions is a poison, you can say that of every substance known to mankind, can't you?

A. Taken under proper conditions, and in sufficient
2345 quantity perhaps that is true.

Q. And you may say that every substance known to mankind is a poisonous substance, under your definition under certain conditions?

A. Not under the definition, but under certain conditions, modifying it.

Q. So, then, as we have got it, all substances are poisons, and all substances are not poisons, depending upon conditions and circumstances. Is that right?

A. Why, perhaps you might so consider it. It is a question of many factors.

Q. And it is in the light of this definition that you are testifying that the nitrites are not harmful?

A. Nitrites are not harmful, in my opinion, under certain prescribed conditions.

Q. Because the quantity is so small?

A. Not necessarily because the quantity is so small. There are other factors.

Q. Nitrite will kill people, will it not, if in large enough quantities? A. If you took enough, yes.

Q. Now, can you think of any addition of any substance to a food which you would say was the addition of poison to food, in and of itself, independent of quantities and concentration, and if so, name one?

A. I didn't understand your question.

[A]. Can you think of any substance which, if added to food, would be the addition of a poison to food,—that is, the substance in and of itself, unassociated with the idea of quantity or concentration?

A. Substances added to food along the line of your questioning this morning—

Q. (Interrupting) I am not speaking of that.

Mr. Butler: I move to strike that out.

The Court: That is stricken out.

By Mr. Butler:

Q. I ask you if you can name any substance, which, if added to food, would be a poison, in and of itself, independent of the matter of quantity or concentration, and if so, name it.

A. I could name a great many. Corrosive sublimate
2346 might be added to food in quantity to produce—would be a poison.

Q. Did you hear my question, Doctor?

A. Independent of quantity?

Q. Yes, independent of quantity or concentration. That is what I am asking you. What substance is there, independent of quantity and concentration, which may be said to be a poison, if added to food?

A. I don't know of any substance that, independent of certain limit—certain quantities which may be greater or less, might not.

Q. Are you aware that, by the common speech of people, certain substances are said to be poisonous in character?

A. Yes. There is a distinction between the common idea of poisons, and scientific idea of poisons.

Q. And your definition? A. Yes.

Q. So, your definition does not correspond with the common use of the word, among people generally, as you understand the situation?

A. My idea of the poison is not the common idea, no, of poison, among the laity.

Q. And, if you were writing a book on toxicology, for example, it would not be out of harmony with the ordinary use of the language, as it is used by scientists, to speak of strychnine as a "poison"?

A. No. We speak of strychnine as a poison.

Q. So, in the medical books, and in the speech of the people, certain substances are spoken of loosely, and not in harmony with your definition, to be sure, but are spoken of as poisons, and poisonous substances? A. Yes, sir.

Q. Among those things is aconite, perhaps, and prussic acid, and nitrites, and strychnine, corrosive sublimate, and many, many others, too numerous to stop to recite. Am I not right?

A. Well, nitrites, ordinarily, I should say, were not considered poisons.

Mr. Butler: I move to strike that out.

The Court: That is stricken out.

The Witness: That was part of the question.

2347 By Mr. Butler:

Q. No, I am not asking what is considered poison.

Mr. Scarritt: You put it in his mouth.

Mr. Butler: Well, we will withdraw the question, if the gentlemen desire to relieve the expert from his dilemma.

Mr. Elliott: I object to that statement.

Mr. Butler: Well, I want you to object to that statement, but that is the situation, just the same.

By Mr. Butler:

Q. Now, we will pass to another matter. I suppose learning in your line is derived, not altogether from your own personal experiments, but you take into account the scientific researches of other men? A. Oh, yes; to a large extent.

Q. You are acquainted with Doctor John A. Wesener, of Chicago? A. Yes, I have heard of him.

Q. A standard author, is he not, on the matter of hemoglobin and met-hemoglobin in the blood? One of the best known

scientists in the whole world on that subject, isn't he? Comes right from your own town? A. I should say not.

Q. He is recognized as a reputable author?

A. He is not the greatest author in the world; no.

Q. Who is, besides yourself?

A. I don't pretend to be.

Q. Well, I know, but who is greater than Wesener, on the matter of finding met-hemoglobin in the blood with a spectro-scope?

Mr. Scarritt: We object to the argument about experts.

Mr. Butler: I am going to tell the gentleman some of Mr. Wesener's findings.

The Court: He may answer.

By Mr. Butler:

Q. Isn't he recognized as a standard, and one of the prominent men in the field of toxicology, especially as relates to nitrates in flour, and resulting met-hemoglobin in the blood?

A. He has given that matter some attention, I believe.

Q. And you have great respect and confidence in his views, have you not.

2348 A. I respect his views; certainly.

Q. And you would be disposed to rely upon any utterance of his, would you not?

A. I would give it consideration; yes.

Q. Now, if, at the hearing of the bleached flour case in the city of Washington, November, 1908, he stated in substance:

Mr. Elliott: (Interrupting) Now, just in regard to that. We object to this, Your Honor, because Doctor Wesener is not here, and there is no possible way of knowing whether that is what Doctor Wesener said, or not.

Mr. Butler: I am going to ask him about his testimony. That is what he said, and you have the transcript, and you will find that at page 277 of the transcript furnished you of that hearing, when you, yourself, were there, taking part in the hearing.

Mr. Scarritt: It don't make any difference who was there. This kind of testimony is not admissible. It is purely hearsay, not an impeaching question, because he didn't ask Doctor Wesener, when he was here, if he said that, and we object to it for those reasons.

The Court: Objection overruled.

Mr. Scarritt: We save an exception.

By Mr. Butler:

Q. Assuming that he stated as follows: "I have spent a great many years in examining blood with a spectroscope, and I make up a dilute met-hemoglobin solution, and by the time you get it behind the lens for examination, you will find a great deal of oxyhemoglobin. The same change takes place. The oxygen working on the nitrite to change it into nitrate. In other words, you might have in with this oxyhemoglobin 10 per cent of met-hemoglobin, and it would be difficult to find it in the spectroscope." Now then, assuming he so stated, do you say that, if there be produced in the blood by a dose of nitrites one corpuscle, and only one, in which the red coloring matter is changed to met-hemoglobin, will you say that you could demonstrate the presence of that single corpuscle, by the spectroscope which you use?

2349 Mr. Scarritt: We object to that for the same reasons above stated.

The Court: He may answer.

Mr. Scarritt: We save an exception.

The Witness: I don't know that I made any such statement.

Mr. Butler: I move to strike that out.

The Court: Stricken out.

Mr. Scarritt: We save an exception to the ruling.

By Mr. Butler:

Q. I want you to answer.

A. As the blood stands, in examining blood I don't think you could detect one corpuscle in the presence of the—met-hemoglobin that might be present in one corpuscle, in the presence of a large amount of oxyhemoglobin. I have no such idea.

Q. You said to us this morning that this spectroscope would disclose a single corpuscle.

A. I said this morning,—if I may answer what I said?

Q. Well, did you not so say?

A. I am answering what I said.

Q. Did you not state as I said? Did you not say this morning that this spectroscope would disclose a single corpuscle, where the hemoglobin was changed to met-hemoglobin? Did you not so say?

A. May I explain my answer?

The Court: No. He asked you whether you said that this morning.

The Witness: I did not say it that way.

By Mr. Butler:

Q. Did you not, in substance, so say, and did you not intend this court and this jury to understand that, that this spectroscope was so delicate that you could discover a single corpuscle out of the whole mass of blood, changed, if that one corpuscle, and none other, be changed? Did you not intend us to understand that thing by your answer?

A. I did not, and I do not so say.

Q. What was it you intended to say?

A. I stated this morning that the micro-spectroscope was delicate enough to detect the methemoglobin from one
2350 corpuscle. I said nothing about how much I had detected, or anything about the presence of other blood. I said it would detect the presence of the met-hemoglobin in one corpuscle, and I reiterate it.

Mr. Elliott That is the micro-spectroscope?

The Witness: Yes, the micro-spectroscope.

By Mr. Butler:

Q. Now, if enough nitrite, such as it put into this flour by the bleaching, be taken to produce complete met-hemoglobin in one red corpuscle in the human circulation, will that person be living at the time that the chemical change has been completed?

A. If there is enough met-hemoglobin to— May I ask if I understand your question right, before I answer?

Q. Yes.

A. If there is enough met-hemoglobin to—if there is sufficient nitrite to produce met-hemoglobin from one corpuscle?

Q. No, not quite. If he takes enough, so that there may be found complete met-hemoglobin in one corpuscle, will it not follow that all of the rest of the blood has been destroyed, and the man is dead?

A. There is no such a thing, as I am aware, as complete met-hemoglobinemia. That is out of the question. You can't have complete met-hemoglobinemia.

Q. You don't pretend to tell this jury, do you, that the taking of nitrites such as is in this flour—Now, I want to get a little illustration, here. (Referring to black-board). We will call these little globules red corpuscles in the blood stream, normal. A. Yes.

Q. Now, what I am getting at, if you take nitrites, so as to produce met-hemoglobin, will it strike them down one at a time, or will it invade the blood, flowing through it, just as ink does it when introduced in a transparent fluid?

A. Well, I have no absolute knowledge of that, and I know of none in the literature as to that point.

The Court: You don't know whether it strikes them all alike, or one at a time?

2351 The Witness: I don't know you can tell.

By Mr. Butler:

Q. Now, let me ask you another question. You said,—and I think I am quoting you right,—that after you took two grains of nitrites, you demonstrated that there was no—

A. (Interrupting) "Demonstrated"? I may have used that word.

Q. (Continuing) That there was no met-hemoglobin? I think you did. I marked it down.

A. I think possibly I did.

Q. Do you want to modify that?

A. So far as my test would go.

Q. Now, there are a great many hundreds of millions or billions of these red blood corpuscles that have the hemoglobin?

A. Yes.

Q. Now, if you take a dose of nitrite, and it strikes them down one at a time, just like shooting a man, and makes the met-hemoglobin, you might tap the blood over here, and get a lot of these, without finding these, isn't that true?

A. Well, take in one moment—It is a question of how the blood circulates. Makes the complete cycle through the body in a very short period of time.

Q. I know.

A. And the question is how soon you mean. We can't work, I don't believe, quickly enough so as to show the presence in one part, and not possible formation elsewhere.

Q. But, suppose there were many hundreds of millions, and only changed 100, you would be very fortunate if you got any of them by tapping and taking out some of the blood, wouldn't you?

A. Yes. There is that factor; Yes.

Q. So, you don't know whether that is the way it does it, or not?

A. I don't know whether it does that way or not.

Q. Now, let us assume it acts the other way. Here is our red corpuscles, again, in the blood stream. Now, we will assume that, when we eat some of this bread with nitrites in it, it doesn't shoot them down one at a time, but that it impairs it by just touching along, diffusing rapidly like the Griess test placed in the clear solution, painting them, depending upon the degree, very slight at first, then more, and a little more, until 40 or 50 per-cent of the function is destroyed.

Then death would come, wouldn't it?

2352 A. No.

Q. 50 or 60?

A. I doubt that death would come with 60 per cent.

Q. 70? A. Possible.

Q. All right. Now, we will say we only have one per-cent. Of course, my drawing here is bad, but it is graphic, and only one per cent is stricken—one per-cent of the function of the power to carry oxygen is stricken. Would that be disclosed in your spectroscope?

A. Well, yes; if there is any met-hemoglobin, at all, it should be disclosed by the spectroscope.

Mr. Butler: I move to strike out what should be disclosed. I asked what would be.

The Witness: Well, I can't say, absolutely, as to that.

Q. Now, do you not agree with Wesener, that at least 10 per cent, and is it not the better authority, that at least 20 per cent of the function of carrying oxygen must be destroyed by met-hemoglobin before any spectroscope will observe the reaction at all?

A. I know of no such work.

Q. But you are not sure, and you will not say that that is not the truth, will you?

A. Under the assumption that you have started the question with, I will.

Q. What assumption is that?

A. There are nitrites of bleached flour.

Q. Well, we will call any nitrites.

A. Now, under the assumption of nitrites taken in small doses, through the stomach—

Q. No, I am not talking about that. I don't care whether it is a carload, or what. We are dealing with another problem besides quantity and I am not going to let you evade it by saying that bleached flour is harmless, and quit talking about it, in that way. You are going to give me an answer to that question. Now, assume that enough nitrite has been added to strike down one-per cent of the oxygen carrying power of each hemoglobin, and each corpuscle in the system, will you say, as a scientific man, that you test, or any tests, known to scientists, will disclose that change, or will you say you know or you do not know. I do not care which.

A. I say that one per-cent, I am not qualified to answer from any personal knowledge I have.

2353 Q. All right. Two per cent?

A. Well, I would say, again, I have made no experiments to see how much. I simply know the fact, on the general literature regarding it.

Q. Three per cent? A. I don't know about 3%.

Q. 10%? A. I don't know.

Q. 15%? A. I don't know.

Q. 20%? A. I don't know about 20%.

Q. 25%?

A. I should say that you probably would find traces of met-hemoglobin by certain tests. Perhaps even less.

Q. If 25 per cent of the oxygen carrying power of our whole blood stream had been destroyed by taking nitrites?

A. I should say it was possible. I don't know.

Q. Possibly, that 25 per cent will be disclosed?

A. That you might even disclose less than that.

Q. Now, do you know that monoxide, hemoglobin discloses itself—met-hemoglobin discloses itself much more rapidly, than the nitrite?

A. I don't know what the limit of delicacy is.

Q. And don't you know that the limit of delicacy has been established with the monoxide met-hemoglobin to be above 20% of the whole oxygen carrying power of the blood stream?

A. I know of no such work.

Q. Do you know to the contrary? A. I do not.

Q. Are you willing to say that, when you take 2 grains of nitrites and then bleed yourself, and look at your blood, that you have demonstrated them?

A. I am willing to say that, if there had been any met-hemoglobin that would arise, that I might possibly find it.

Q. Did you ever take blood from the living blood stream of a human being, and find met-hemoglobin produced by nitrites in it.

A. I found met-hemoglobin from the living blood stream. I don't know—I can't say that in this case it was produced by nitrites. It is entirely possible it might have been.

Q. What percentage of the whole oxygen carrying power must be destroyed before sickness will come?

A. Why, I think there are pretty definite experiments on it. I don't think you can get any symptoms from the action of met-hemoglobin before you have 40 per cent destroyed?

2354 Q. What symptoms show it?

A. When you get met-hemoglobin, the beginning symptoms would be, perhaps, slight cyanosis, changing color of the blood, throbbing in the head, lower blood pressure.

Q. Doesn't it show in the breathing the first thing?

A. How?

Q. Doesn't it affect respiration, throbbing of the heart, reeling, staggering, and finally death? Isn't that the picture of nitrite poisoning?

A. Perhaps it goes that way, but the effects you are asking about—the symptoms, are not necessarily, in all cases, produced by toxic action, but sometimes by therapeutic action.

Q. Did you ever see a case of nitrite poisoning?

A. I can't say that I have. I don't recall whether I have or not.

Q. What is the difference between therapeutic action and toxic action?

A. Therapeutic action is the action which we endeavor to obtain by the normal administration of drugs to help people. Toxic action is the action obtained when we give larger doses than are given for therapeutic purposes. Toxic doses are given, or taken, for purposes of producing death. Therapeutic doses are given in order to control symptoms of disease.

Q. Then, I get the idea that it makes a difference whether you are intending suicide, or intending to cure, or kill, when you are taking quinine? A. Why, yes.

Q. And if you were intending to cure, that would be therapeutic, and if you were intending to commit suicide, it is toxic?

A. Yes; certainly.

Q. So, it depends upon the intention of the person taking or giving it?

A. I don't know whether it depends upon the intensity of the person giving it.

Q. No, the intention. No, not on the intensity,—the intention, the will, of the person.

A. It might have something to do with that; yes.

Q. So, then, if I propose to cure you of some malady that you have, and I gave you some prussic acid, that would be therapeutic, but if I intended to kill you, and gave you just the same amount, that would be toxic, would it?

2355 A. Not if you gave me enough for a therapeutic dose, you wouldn't give me enough to kill me, and therefore it wouldn't be a case of therapeutic and toxic doses.

Q. It wouldn't be toxic, unless I gave you enough to kill you? A. No; certainly not.

Q. So, then, as I draw the generalization from the detail mentioned, no substance produces toxic action, unless in fatal doses?

A. Oh, yes; yes. Lots of drugs produce toxic action in less than fatal doses. It is not what would necessarily be fatal, by any means. It is not necessary, if I take a dose of strychnine, that I die.

Q. Well, now, let me see. Is the question of therapeutic action or toxic action one of degree, only?

A. Oh, the toxicity of a drug—

Q. (Interrupting) I am not speaking of the toxicity of a drug. I am speaking of the toxicity of the action resulting from taking a poisonous substance.

A. That is the toxicity of a drug. The toxicity of a drug depends upon many factors. It depends upon the dose.

Q. I know, but is a toxic dose always greater than a therapeutic dose?

A. It depends upon conditions. It may be exactly the same dose. Depends upon the individual; depends upon the age of the individual; depends upon his size; depends upon his condition; depends upon a lot of factors.

Q. If it be given as a medicine, it is therapeutic?

A. If it be given as a medicine, the one giving it as a medicine would certainly give it in proper doses.

Q. No, but suppose he made a mistake and killed him; would it still be therapeutic? A. No. Toxic.

Q. Is the change of hemoglobin to met-hemoglobin due to chemical action?

A. It is due not to chemical action, in the ordinary sense.

Q. Is it due to chemical action, at all?

A. Due to something which comes under the head of chemical action; yes.

Q. Now, you say that urea in the saliva is one of nature's own defenses against nitrites added to bread by bleaching flour?

A. I said urea in the saliva and elsewhere; yes.

2356 Q. Well, we will speak first of the saliva.

A. It is possible.

Q. So, then, we understand that urea in the saliva is nature's own defense to the poisonous nitrites which may be found in bread made from flour bleached by nitrogen peroxide gas, is it?

Q. I don't say that, urea in the saliva, alone; no.

Q. Well, is it one of the defenses?

A. It is a portion of the amount of urea that I have in mind; yes.

Q. Is urea a normal constituent of the saliva, of well human beings? A. It is.

Q. Found in health and sickness alike?

A. Found in larger quantities in certain diseased conditions. Found in less quantities in normal conditions.

Q. What is the normal amount of urea in your saliva?

A. I have not tested it.

Q. How many persons have you tested?

A. I have never tested it. Never had occasion to.

Q. Did you ever find urea in any person's saliva?

A. I have never had occasion to test for that.

Q. You know, do you not, that it is common with people whose kidneys do not functionate normally?

Q. That, and a thousand other things.

Q. You know it is common with them?

A. It may be found there; yes.

Q. And it is, frequently, isn't it?

A. Well, if the kidneys are not functioning properly.

Q. And you know that doctors treat people so as to make them sweat stimulate the flow of saliva, and all that sort of thing, when the kidneys will not act, by reason of nephritis, Bright's disease, and the like?

A. Yes, it is usual to make them sweat. The drug that is given to persons to produce sweating—

Q. (Interrupting) I am not asking you that. You are familiar with the fact that they try to get it to pass out through the skin? A. Yes.

Q. That is, vicarious excretion? A. Yes.

2357 Q. Many instances of that?

A. There are instances, in disease.

Q. In other kinds of functions?

A. The vicarious functions of all the organs,—any organs may be diseased, and other organs take up that function vicariously. That is possibly true. A large number of the organs, any way.

Q. Of the nitrite, now, in the saliva. How much nitrite is there in your saliva?

A. I have found it as high as 4.5 parts nitrite per million.

Q. Is there any urea in your saliva to off-set that nitrite?

A. I never tested, and if there were, it wouldn't decompose it.

Q. If what?

A. If there were urea, it would not make any difference. It would not destroy the nitrite reaction in the saliva.

Q. It would, if you took it out and put it in a test tube, and used a little hydrochloric acid?

A. Yes, but I had no occasion to take it out and examine it.

Q. Do you say that there is enough urea in saliva to take care of the nitrites in the saliva? Is that the rule? Is that one of the Lord's own ways of getting rid of this source of poisons? Urea is a poison, too, isn't it?

A. It might possibly come under that head, yes. I wouldn't argue with you on that.

Q. And your idea is that nature's own defense against these nitrites, which are poison, is another poison?

A. Oh, no. Urea is a product of the normal activity of the system. It is a normal constituent, in various parts of the body. It is a normal substance. So are the nitrites.

Mr. Scarritt: So are what?

The Witness: So are the nitrites.

By Mr. Butler:

Q. Now, reference has been made to some of your authorities. I want you to cite me to any authority or authorities

which you know which say that urea in the saliva is a defense to nitrites, taken either as a medicine, or in food, as a poison?

A. I don't know of any authority that so states.

Q. Have you examined for authorities on that subject?

2358 A. I never have looked that phase of the point up. Never had occasion to.

Q. In all your reading and learning, you never heard or saw it written in any book or authority, that the urea found in the saliva were a defense against nitrites in food, or nitrites as medicine, or nitrites as poison, have you?

A. Never seen it. I am learning new things every day. That is not unusual.

Q. Now, when did you first learn that the urea of the saliva was nature's defense against the nitrites, such as may be added to bread by bleaching the flour by Alsop's process.

A. When did I first learn it?

Q. Yes.

A. I haven't learned it. I have experimented upon it—talked about it.

Q. Do you say that is the truth?

A. Oh, I simply have that as an idea. I am entitled to my assumption only.

Q. Then, you give it, not as a mature conclusion, but as an idea, or an assumption?

A. I give it as an idea, based upon reasoning, and based upon a large number of facts which can be presented to show that this might be one of the ways in which nitrites—There is nothing been written upon it. I have a right to assume that it may be possible.

Q. Did Doctor Haines tell you that it was possible?

A. No, he did not tell me so.

Q. Did he tell you he believed it to be so?

A. We talked the matter over.

Q. And he told you that he believed the urea in the saliva was nature's defense against nitrites that might be taken either in foods, or medicines, or as a poison?

A. No. He didn't tell me.

Q. Who originated the idea, now? Did you ever, in any of these bleached flour litigations, or anywhere else in the world, hear any medical man stand up and proclaim that urea of the saliva was one of nature's defenses against nitrites in food, nitrites as medicine, or nitrites as poison, until you heard Doctor Rockwood, from that stand?

A. Yes. I had heard it mentioned before I heard Rockwood mention it?

2359 Q. Who mentioned it?

A. I heard Doctor Haines mention it.

Q. Where? A. Chicago.

Q. When?

A. Oh, some ten days ago, I guess. I can't recall when.

Q. You are connected with him in a professional way, in some institution, somewhere?

A. We are in Rush medical college; yes.

Q. So, then, that is really a new suggestion, is it not?

A. It is a suggestion, like a lot of other suggestions must be introduced. We are trying—

The Court: (Interrupting) Oh, he asked if it was a new suggestion.

The Witness: I was trying to answer.

By Mr. Butler:

Q. Is it a new suggestion?

A. Relatively, so far as I know.

Q. Now, you told us that experimentation, in glass, and test tubes, etc., are not to be compared with the changes in the vital organism?

A. No. They are different in degree, yes; I would state that. Different in time.

Q. And if you prove one thing in a test tube, like making met-hemoglobin of an ox's blood, that don't prove it will make it in the body, does it? A. No.

Q. And if you get some urea at a drug-store, and fix up some trinkets like this exhibit 278—

Mr. Elliott: (Interrupting) Fix up some what?

Mr. Butler: Trinkets: I will call them trinkets. 278 and 279.

Q. You think that that, to scientific men, has any tendency to prove that a little urea bought at a drug store, sprinkled on bleached flour, would neutralize the nitrites added by the bleaching, so that we could eat the flour without any danger of the evil effects from the nitrites?

A. Perhaps not, in itself, but we have other evidence.

Q. I know, but, of itself, you would not, as a scientific man, say that it did?

A. I would take it into consideration; sure.

Q. Don't you think that the urea you could go and buy in the drug store, and get it in a spray, and spray it into the flour after it had been bleached by the nitrite reacting material that is put into it by the bleaching,—don't you think that that would, then and there, eliminate all danger of nitrites?

A. I believe that if you put urea in the bread, that has the nitrites, that you will not be able to demonstrate the Griess reaction.

Q. So, then, the nitrites would be destroyed.

A. I think it can be proven.

Q. So, you hold, do you not, that if these Alsop machines had a urea spray, and sprayed the flour with urea at the time they were treating it with NO₂, that the nitrites would not be in the flour, when it was bleached, and that it would, therefore, be safe, don't you? A. Why, not—

Q. (Interrupting) Now, you will have to answer that question. A. Yes.

Mr. Elliott: I object to that as incompetent, irrelevant and immaterial.

The Court: The answer may stand.

By Mr. Butler:

Q. So, you hold, do you not, that it would eliminate all question of danger, if they would just take an atomizer, and spray the flour with urea, immediately after it had gone through the agitator when it was bleached with NO₂ gas, don't you?

A. I hold there is no danger in the bleached flour, as such.

Mr. Butler: I move to strike that out.

The Court: That is stricken out. That is not an answer.

Mr. Scarritt: We save an exception to the ruling.

The Court: What he asked you is, if this thing is dangerous, whether it would do any good to spray it with urea.

The Witness: That would depend entirely upon how much urea was put in there.

2361 By Mr. Butler:

Q. The right amount?

A. I am not passing judgment on that. I would want to experiment and see what effects would happen, under what conditions you would get certain products formed by the action of the urea, and so on. I wouldn't want to state, off-hand.

Q. So, you wouldn't be ready, yet, to patent the urea sprayer as an addition to the Alsop process, would you?

A. Not unless I could be sure of getting it.

Q. Not unless you could sell it? A. Yes.

Redirect Examination

By Mr. Elliott:

Q. Doctor, is it not known that nitrites are destroyed in the system when given in relatively large amounts?

A. Yes. It is well known.

Q. Now, Mr. Butler asked you questions about urea in the saliva. I want to ask you if urea is in other parts of the body, including the stomach?

A. Oh, yes. Urea is found—urea is a product of the decomposition of protein—of the proteolytic decomposition in any part of the body. Might be proteolysis, or the decomposition going on in practically every cell in the body.

Mr. Butler: I move to strike out the answer, as not responsive to the question. I move to strike it out, except as relates to the stomach.

The Court: That may be stricken out, all except the stomach.

By Mr. Elliott:

Q. Is urea in the stomach? A. Yes, it is.

Q. Is it in other parts of the body?

A. It is in other parts of the body.

Q. I will ask you, do we have amino acids in the ordinary foods that we eat?

A. We have amino acids in relatively large quantities, in quite a large number of the common foods; yes.

2362 Q. And is it well-known that amino acids, and nitrous acids—amino and nitrous acids will react with each other? A. Certainly.

Q. Amino compounds? A. Yes, sir.

Q. And cause mutual destruction?

A. Cause mutual destruction, and formation of hydroxy compounds from the amino compounds; yes.

Q. Is urea also present in the saliva, and the gastric juice? A. Yes, sir.

Q. What bearing would this fact have on the destruction of nitrites in the food? A. Of the nitrites in food?

Q. Yes, sir.

A. This would tend to destroy the nitrites in food, when the reacting material reached the stomach, where the nitrous acid was liberated from the nitrites. It is the nitrous acid that reacts with the urea, one molecule reacting with one molecule.

Q. I will also ask you if there are denitrifying or nitrite-destroying bacteria in the alimentary tract, and, if so, what bearing has that fact upon the destruction of nitrites in the food?

Objected to as not proper redirect.

Question withdrawn.

Q. Now, Doctor, upon this question of met-hemoglobin. I will ask you if met-hemoglobin is converted in the body, into hemoglobin, again? A. Yes, relatively rapidly.

Q. Is the production of met-hemoglobin, therefore, fatal to that part of the blood converted?

A. By no means, unless there has been sufficient destruction of the red cells to so destroy them that they are not capable of regeneration, or of rebuilding up of the hemoglobin—oxy-hemoglobin.

Q. I will ask you if, in your judgment, there is any proof that nitrites, in small amounts, produces met-hemoglobin in the body,—that is, in the living, circulating blood?

A. I think there is absolutely no proof that nitrites, in small quantities, do produce met-hemoglobin in the blood current of the body.

Q. Do you understand lead chromate, and borax, and coal tar dye, and those other substances put to you by Mr. Butler, are normal constituents of food, or normal constituents of the body?

2363 A. No, sir.

Q. Now, in expressing an opinion as to the harmfulness or harmlessness of minute amounts of a substance, would you, as a toxicologist, be influenced by the consideration that the same substance is constantly and inevitably being taken into the system?

Mr. Butler: Objected to as not redirect, argumentative, leading and suggestive.

The Court: He may answer.

The Witness: It would be very largely influenced by that fact, that substances are—

By Mr. Butler: That is all.

By Mr. Elliott:

Q. I will ask you to explain your opinion?

A. Substances that are being taken into the body constantly, are substances to which the body becomes accustomed, and, as a rule, if [there] substances are added in small amounts to the food, they would produce no deleterious effects on account of the relative tolerance, or the effect, or the action of some check or other in the system upon the substances so introduced. Substances which are foreign to the body, such as lead chromate, borax, formaldehyd, would be substances which would be deleterious, and which, perhaps, in small amounts, would better be left out of the flour—out of the food. There are reasons for adding certain of these substances, however, such as formaldehyd. I have many reasons for believing formaldehyd, as an adulterant, should be used.

Mr. Butler: Should be used in food?

The Witness: Should be used in milk.

Mr. Butler: You think it should be?

The Witness: I have certain reasons for believing it.

Mr. Butler: Tell them all, will you?

The Witness: I say I have certain reasons for so believing.

The Court: Now, let us understand. You think formaldehyd ought to be used in milk, to preserve it?

Mr. Elliott: Now, just explain your opinion.

The Witness: I do, under certain conditions. During
2364 this hot spell, such as we are having now, 9-10ths of the milk that comes into Kansas City, for instance, is absolutely bad. It is infected with organisms which are deleterious to the infant, if they be taken into the stomach as food of the child, and the child soon has enteritis, and dies more or less soon. With the formaldehyd,—which I am not advocating as the best treatment,—but, with the presence of formaldehyd in the milk, we have these bacteria, to a large extent, destroyed, and, therefore, the milk rendered usable, and the large majority of the people who can't get hold of decent, clean milk. The same thing can be said of benzoic acid.

The Court: Now, let me see if I understand you. You think that milk ought to be preserved with this corpse-embalming fluid, called formaldehyd?

The Witness: I don't think it is a corpse-embalming fluid. I don't consider it so. Such a substance is used, however.

The Court: Don't every undertaker use that?

The Witness: Some of them do, but my opinion is this substance, in the amounts added to milk, would not be a corpse-embalming substance, but, on the other hand, if we have no means of adding this substance to milk—I don't say milk, I say something else—

Mr. Butler: (Interrupting) I will object, may it please the Court, to the lecture about something else.

The Witness: I will use formaldehyd.

Mr. Butler: All right.

The Court: He is talking about formaldehyd.

The Witness: I simply used formaldehyd as an example.

Mr. Butler: He will come around to pasturizing, presently.

The Witness: No, I am not going to mention that. The use of formaldehyd is certain to produce a certain amount of

disinfection of the milk. In the absence of proper methods of cleansing and assuring that the milk is clean, as it comes to the average person in the household, and the average people, that milk must be preserved in some way, formaldehyd being one method. Not only our babies are going to gradually have enteritis, but are going to have, gradually, various other things, and are going to die with it.

The Court: You think that the babies about a great many hotels, in drinking milk, would be healthier than babies in the country, drinking good milk?

The Witness: Not at all. Milk in hotels is notoriously dirty milk. You take the Baltimore hotel, the milk is far from clean. I have found sediment in the milk pitchers and cream pitchers in quite a large amount, which is one of the fairly good hotels in Kansas City, and I suppose it applies to other hotels, so that I don't assume that to be true, at all. That sediment may be bacteria, as far as I know.

The Court: Well, go ahead. I didn't know.

The Witness: I don't know.

The Court: I knew that undertakers used it.

The Witness: Yes.

The Court: And I knew some of these milk-wagon fiends used it, and I didn't know it.

The Witness: If it isn't preserved, the children get—if it isn't clean—I don't say preserved—if it isn't clean, the children must get, during this hot season, enteritis, in which enteritis is the chief cause of the children's death during this hot term, as any hygienic work will advocate.

By Mr. Elliott:

Q. Mr. Butler was questioning you about your recent experiment and knowledge of urea. I want to ask you, Doctor Webster, if you ever heard it suggested, before this case, that it was harmful to breathe the air, or to swallow ones own spit-
tle?

Objected to as not proper redirect.

Overruled.

A. No. I never have had any such knowledge, that it was injurious to breathe the air. I know that some air is bad, but I never heard it was strictly harmful to breathe air. We

2366 have to breathe it, as necessary for life,—got to have oxygen. Can't get along without it.

Q. Are you familiar with the substance, benzoate of soda? A. I have heard of it; yes.

Q. Is that a preservative? A. Yes.

Q. Used as a preservative?

A. Yes, and so allowed by the United States government.

Q. In large quantities, is it a poison? A. Yes.

Q. And, in small quantities, in your judgment, would it be harmless?

A. Absolutely harmless, yes, small quantities.

Q. Is benzoic acid, from which benzoate of soda is derived, a normal constituent of certain foods?

A. Yes. It is present in large quantities in certain foods, and constantly produced in the system.

Q. And does that fact have an influence in enabling you to express the opinion that it is harmless?

A. Yes. The fact that it is constantly found in very everyday foods; the fact that it is the product of normal activity in the system, influences me, largely, as well as other things. That is one factor.

Q. Is it within your knowledge that nitrites occur normally in certain foods, and are swallowed constantly, by swallowing the saliva?

A. Yes, sir. It is found in certain foods.

Q. In your opinion, would the character of benzoate of soda, or benzoic acid, as occurring naturally in foods, and being normally taken into the system, be comparable with these nitrites?

A. Yes, it would be entirely comparable to the introduction of nitrites into the system.

Recross Examination

By Mr. Butler:

Q. Doctor Webster, you favor the adding of formaldehyde to milk, because the milk is dirty, and foul, and has to be preserved? You wouldn't favor adding it to clean milk—we will say good cow's milk?

2367 A. There would be no reason for adding formaldehyde to perfectly pure, good milk.

Q. You think that would be an adulteration of the milk, wouldn't you?

A. Within certain limits. My idea—if I may be permitted to state is—is simply this; that if there is any good can be done by adding it, and no harm done, at the same time, then it is advisable to use it.

Q. Just like giving strychnine for medicine, isn't it?

A. Yes, something on that basis.

Q. Simply comparable? A. Yes, it is comparable.

Q. But you would say that it was wicked, and sinful, and wrong to add formaldehyde to clean milk that was being fed to a baby—pure, fresh milk? You would say that was dangerous to the baby's health, and it would be wicked and wrong to do it, wouldn't it?

Mr. Scarritt: We object to that form of the question.

The Court: He may answer.

The Witness: I wouldn't say it was wicked and sinful, if it was introduced in very infinitesimal amounts.

By Mr. Butler:

Q. You would think it was unjustified?

A. I would think it was unnecessary.

Q. And unjustified?

A. Yes. There would be no reason for adding it, because the milk was already clean; therefore, no reason.

Q. Do you believe in adding borax and coal tar dye to pancakes and syrup and butter?

A. Why, it depends upon the butter.

Q. Well, is that the only answer you can give us?

A. No. As a general rule, I don't believe in adding things to food products. That is my position.

Q. But, on the Baltimore hotel butter,—you seem to like to denounce that place—

A. I don't like to denounce it, and I do not denounce it.

Q. —and hotels generally, now, how about the butter you get in the hotels in Kansas City? Do you think adding borax, and coal tar dye, would be a good thing?

A. No. As a general rule I should say there would be no reason for doing that.

2368 Q. I asked you if it would be a good thing, or a bad thing, for health.

A. I don't think it would be particularly bad. I don't say it is good.

Q. Nitrites and nitrates, added to bacon, and eggs—do you think that would be a good thing, or a bad thing for health?

A. I think ham and bacon are largely cured that way, and makes the bacon considerably better.

Mr. Butler: I move to strike that out as not responsive.

The Court: It is not responsive.

Mr. Scarritt: We except.

A. Added, in the sense of additional to the curing, you mean?

By Mr. Butler:

Q. I mean adding it to the natural ham, and the natural bacon, and eggs?

Mr. Scarritt: In what manner?

By Mr. Butler:

Q. Go on and answer.

A. I prefer the cured ham to the uncured.

Mr. Butler: I move to strike out the answer, as not responsive.

Mr. Scarritt: We object to its being stricken out.

The Court: It is stricken out.

Mr. Scarritt: We except.

A. I don't think it is harmful, then.

By Mr. Butler: You think it would be a good thing for health.

A. I think it is a good thing.

Q. To add nitrites to bacon and eggs?

A. Added, in the sense in which I mean added, in curing of the meats, I certainly do believe it is a good thing.

Q. Do you think it would be a good thing to add boracic acid to eggs, and preserve them, as liquid eggs, for use in making our cakes, or a bad thing?

2369 Mr. Scarritt: Same objection.

The Court: He may answer.

Mr. Scarritt: We except.

A. As I said before, I don't believe that the addition of things, as a rule, to food products, is advisable. The addition of substances, other than substances that are normally found or introduced into the system, are different. The action is different.

Q. I wasn't calling for a speech, but only for an answer to the question whether you think it would be a good thing for health, to preserve eggs in liquid form, by boric acid, and then make a cake out of the eggs so preserved.

Mr. Scarritt: Same objection.

The Court: He may answer.

By Mr. Butler:

Q. Whether it would be a good thing, or a bad thing.

A. I think it would be a bad thing, because the eggs that are preserved are generally, when they are in liquid form,—are usually bad, before they are preserved.

Q. Now, with respect to coffee. Do you think it is a good thing or a bad thing, to put lead chromate on the coffee?

A. Why, certainly, lead chromate, under any conditions, I shouldn't think it would be advisable to add it. I haven't heard that it was.

Q. You have never heard of the contamination of coffee that was made beautiful and purified by lead chromate?

Mr. Scarritt: We object.

A. I have heard statements of it, but I don't know it.

By Mr. Butler:

Q. You have never seen the coffee?

A. I have never found it in it.

Q. But you do know, do you not, that it customary or has been, until stopped by law, to coat the coffee with chromate of lead?

A. I know it has been used, but I do not approve of it.

2370 Q. How about sulphates in sugar? Do you believe in that?

A. I don't know. As a general thing, I do not believe in the addition of any of these things.

Q. Now, take some sweet pickles with some alum. Now, you know they use some alum, sometimes?

Mr. Scarritt: We object.

A. They use it in baking powder, too.

Q. Now, let us say in the sweet pickles we would have for lunch, there would be some benzoate of soda, and copperas, and alum. Do you think that would be a good thing, or a bad thing?

Mr. Scarritt: Same objection.

A. I think it would be a bad thing to put copperas in any article of food.

Q. And yet you know, do you not, that some of these things are sometimes added to sweet pickles?

Mr. Scarritt: That has nothing to do with this case, if Your Honor please, and we object to it.

The Court: What is the objection?

Mr. Scarritt: It has nothing to do with it. He has already stated.

The Court: I say, what is the objection?

Mr. Scarritt: The objection is it is incompetent, irrelevant and immaterial, has nothing to do with the issues in this case.

The Court: Objection is overruled.

Mr. Scarritt: We except.

By Mr. Butler:

Q. You may answer.

A. I have forgotten what substance you mean.

Q. Sweet pickles, adulterated with alum, benzoate of soda, and copperas.

A. I wouldn't think that would be a very good thing to use, no. I would not approve of it, for copperas and alum. I might of the benzoate of soda.

Q. Canned peaches, with some saccharin added?

2371 Mr. Scarritt: Same objection.

The Court: He may answer.

The Witness: Saccharin, I should say would be absolutely harmless. I use it very frequently, and very widely given to patients in relatively large quantities, given in frequent doses.

The Court: Canned peaches?

The Witness: Saccharin.

By Mr. Butler:

Q. Saccharin you approve of? A. Oh, certainly.

Q. Now, sweet cider, fixed up with a lot of ammonium fluoride,—how would you like that?

Mr. Scarritt: Same objection.

A. I wouldn't care for it.

By Mr. Butler:

Q. You would consider that injurious to health, wouldn't you?

A. These substances I would not consider injurious to health. I can go back and explain my situation, as I did, earlier in the morning. My opinion is this; it was best not to add anything that is inherently harmful.

Q. What is "inherently harmful"?

A. Inherently harmful would be—ammonium fluoride would be inherently harmful in large enough doses.

Q. Is that the only substance?

A. No, we might have anything.

Q. Name some more inherently harmful substances.

A. There are other substances known, can come under that, "inherently harmful."

Q. What do you mean by "inherently harmful"?

A. I mean substances which, in and of themselves, are harmful, in and of themselves, in all doses,—in all quantities.

Q. Name them? A. I can't.

Q. Well, let us go on. You can't answer that. Now, from the breakfast that I stated to you this morning, there are, by your own testimony, 13 doses of poison, or substances inherently harmful, if it was in sufficient quantities?

2372 A. Yes.

Q. Do you think, from the standpoint of good health, you being able to conscientiously swear that the dose of no one of them was big enough to be poisonous, can you conscientiously swear that that kind of breakfast, morning after morning, day after day, and month after month, and year after year, is not injurious to health, or may not be?

Objected to as immaterial.

The Court: He may answer.

A. I should say, just as I said this morning in answer to that same question, that I was unable to answer that, without knowing what the interaction of various of these substances was. I couldn't answer that question categorically.

By Mr. Butler:

Q. Suppose, for dinner, we had boiled corned beef and cabbage?

Mr. Elliott: We object to that. It has all been gone over.

The Court: It is hardly recross-examination.

By Mr. Butler:

Q. Now, Doctor, I want to ask you, how are nitrites destroyed? I believe you told Mr. Elliott nitrites are destroyed in the body, when taken in large doses, and, if that is so, how do they have any medicinal effect?

A. How do they have any medicinal effect?

Q. Yes.

A. There is the well known fact—I must answer this rather at length, Judge. I can't answer it only by yes or no. It is well known that when various nitrites, such as nitroglycerine, in 1-100th of a grain—

Q. (Interrupting) Well, now—

A. I have got to say this. These nitrites—

Q. (Interrupting) If you will pardon me, I am not asking you to give anything about that. I want you to start with the nitrite in the body.

A. I have got to give that.

Q. You say they are neutralized or destroyed, and I say, assuming they are put in the body, and that they are
2373 neutralized and destroyed and I want you to tell me, if that is so, how they have any medicinal effect?

A. The first assumption I should have to make, to answer that question is, that substances in the stomach are not within the body. The substances introduced into the stomach is acted upon by the hydrochloric acid and the urea, producing the splitting up of those two substances, a portion of which never gets into the blood.

The Court: Here, Mr. Witness, is the question, as I understand it. The Government contends that these nitrites getting into the blood, into the system, are harmful. You say they don't get there because they are destroyed by the urea. If they are destroyed by the urea, how can they be effectual as a medicine?

The Witness: I was just going to explain.

The Court: Well?

The Witness: A certain portion of them never gets into the blood, and therefore, can exert no effect, because within the stomach a substance is not in the system. That is outside of the body, as long as it is in the stomach. Now, a certain minute portion or a large portion, we know is destroyed by these natural defense, and never gets into the blood. The portion of that that does get into the blood exerts a medicinal influence. Now, when that 1/100th of a grain, of nitro-glycerine—

Mr. Butler: (Interrupting) I am objecting to the nitro-glycerin.

The Witness: I can use amyl nitrite, if you wish.

Mr. Butler: Is nitro-glycerin a nitrite?

The Witness: It is a nitrate, but it splits up into a nitrite, and acts partly as a nitrite, and in the form of nitrate, also.

Q. Is amyl nitrite given by the mouth? A. No.

Q. Now, these are the nitrites given by the mouth.

A. Nitro-glycerin is given by the mouth.

Q. Can't you think of any nitrite?

A. Yes, sodium nitrite. I am going to work up to sodium nitrite, in just a moment, in answer to that question.

2374 Q. Oh, no. Come straight to the point.

A. I have got to use comparison. You asked how it is that they exert a poisonous or medicinal effect. A grain of sodium nitrite is supposed, theoretically, to exert the same effect as 1/100th grain of nitro-glycerine. Now, if the nitro-

glycerin acts as the text book say—if nitro-glycerin acts by its nitrites, why does 1-100th grain nitro-glycerin act just the same as a grain of sodium nitrite? Simply because a portion of the sodium nitrite is decomposed in the system. You got more than enough to be used up by the urea.

Q. So, I understand you would have to put in enough nitrite to overcome the urea in the stomach, before you would get any medicinal action? A. Oh, no.

Q. How does urea get into the stomach, except by the saliva?

A. It is partly formed there. It is partly excreted there. The stomach is one of the greatest [excreted] there. The stomach is one of the greatest excretory—

Q. (interrupting) By what gland?

A. I don't know by what gland. That is not known, but the stomach is one of the greatest excretory organs we have.

The Court: Now, please—

The Witness: (interrupting) He asked me.

The Court: Now, just a moment.

Mr. Scarritt: I want the witness to have a chance.

The Court: I say, regardless of anybody, that these lectures upon matters not called out here are exceedingly tiresome.

Mr. Scarritt: We except to the Court's ruling.

The Court: Now, wait until I get through.

Mr. Scarritt: All right.

The Court: Now, you are asked a question, and you go on here and deliver us a lecture. It is not pleasing to me, or instructive.

Mr. Scarritt: We except to the Court's remarks about this witness.

2375 The Court: You may answer the questions, and not anything else. Now, just wait until the question is asked, then answer it. Now, ask him a question, and let us get on.

Mr. Butler: We will pass over that subject.

Q. You told Mr. Elliott that met-hemoglobin in the blood changes back to hemoglobin?

A. Why, yes. I certainly did.

Q. Will you cite me to any authority that says that?

A. Yes, I can tell you—cite you to a great many. Hammerstein's text-book, in front of you.

Q. That it changes back? A. Not eliminated.

Q. No, but changes back.

A. Reconverted—is changed in the hemoglobin, and then into oxyhemoglobin, but you can find it in Hammerstein. I can't give you the page, but it is there.

Q. You say it is in Hammerstein? A. It is there.

The Court: Don't stop to look it up. You can look it up at your leisure.

The Witness: I have got to answer the question.

The Court: Now, listen: You do not have to do anything of the kind. I say that you will, after leaving the stand, look this up, and find the page, and [they] you will be recalled and answer as to that. You do not have to delay this Court 'til you look that up.

By Mr. Butler:

Q. Are you familiar with an authority called by the name of Asher, who writes in the Journal of Biology?

A. I know Asher's work. I don't know on what subject. I am familiar with some articles by Asher.

Q. He is a man of-repute and standing.

A. He is a man that has written. I know nothing of his standing.

Q. Does he not lay it down in volume 40, at page 541, in the year 1900, that urea is not normally present in the saliva, but may occur when the kidneys are closed, or words to that effect?

Mr. Scarritt: I object to that, because the witness says he doesn't know anything about the author or the book.

Mr. Butler: I don't think he will say he don't know
2376 anything about the book.

The Court: What do you say about the book?

The Witness: I say I don't know what he states. I have quite a number of references on the other side.

By Mr. Butler:

[—] You know Asher?

A. I know Asher, but he is not a great man. Asher is a good man, but there are men just as good.

Q. He is a professor, teaching?

A. Yes, there's lots of professors teaching that are not any good.

Q. Is he one of them? A. I don't know.

Q. Do you teach?

A. I do, and I am not any good.

Mr. Butler: Thatk you. That is all, sir.

Witness excused.

Walter S. Haines being called as a witness on behalf of claimant, being first duly sworn was examined, and testified as follows:

Direct Examination

By Mr. Elliott:

Q. State your full name?

A. Walter S. Haines.

Q. And your residence?

A. I live in Chicago.

Q. Your occupation.

A. I am the professor of chemistry materia medica and toxicology in Rush Medical College there, and I am the professorial lecturer on toxicology in the University of Chicago.

Q. How long have you been in Rush Medical College and in the University of Chicago?

A. I have held my present position there in Rush Medical College, for the past thirty four years. I have had my present position in the University of Chicago for the past nine
2377 years.

Q. What is toxicology, Dr. Haines?

A. Toxicology is the science that treats of poisons.

Q. What learned societies, if any, are you connected with?

A. I am a member of the Chicago Medical Society; of the Illinois State Medical Society; of the American Medical Association. I am a member of the American Chemical Society, and am a fellow of the Chemical Society of London.

Q. What other positions, if any, in connection with your profession, do you hold?

A. I am a member of the committee of revision of the United States Pharmacopoeia. I was appointed to that position in 1900 for ten years, and I was reappointed to the same position for another ten years in May of this year. I am Chairman of the Committee on Pharmacology of the Chicago Medical Society. I am the toxicologist to the Presbyterian Hospital in Chicago and I am a member, appointed by the Governor of the State of Illinois of the Commission on occupational diseases of the State of Illinois.

Q. Have you given particular attention to toxicology, Dr. Haines? A. Yes, I have.

Q. Are you familiar with the occurrence of nitrites in the human saliva? A. Yes, I am.

Q. Within what range have you found them to occur?

A. In my own personal observation I have found them to occur within the range of about one tenth part of nitrogen as nitrate re-acting material to a million, up to about five

parts nitrogen as nitrite reacting material, to a million. Those are my own observations.

Q. Will you tell us how much saliva is swallowed during a day by an average adult?

A. About a quart and a half or two quarts.

Q. About a quart and a half or two quarts?

A. Yes. From one to two quarts, perhaps.

Q. In your judgment could the swallowing of this amount of saliva containing varying amounts of nitrite, day in and day out and year in and year out, be harmful?

A. No. In my opinion it could not possibly be harmful.

2378 Q. And if you have any reasons for that opinion you can express them.

A. My reason for that opinion is this: Saliva is swallowed from earliest infancy until death, and this saliva always, or very nearly always contains nitrites, or nitrite reacting material. This has been going on for ages without any question, and the system has become accustomed to such nitrites. It has become a part, or rather, the nitrite reacting material has become a part of the processes of life, consequently I cannot conceive that substance that is all the time entering the body—that has as far as we know always been entering the body, would possibly have any influence upon it in an unwholesome way.

Q. Suppose you are called upon to express an opinion as to the harmful or harmless character of a substance. Now, I will ask you, in expressing an opinion as to the harmfulness or harmlessness of minute amounts of a substance, would you, as a toxicologist be influenced by the considerations that this same substance is constantly and inevitably being taken into the system?

A. Yes. Those considerations would have a very great influence.

Mr. Butler: I move to strike out the weight of the influence as not responsive.

The Witness: It would have a very great influence upon my judgment. In fact, I think they would have, perhaps the determining influence upon my judgment.

By Mr. Elliott:

Q. Have you any opinion Dr. Haines, as to how nitrites are dealt with when taken into the body by the mouth?

Q. Yes. I have an opinion.

Q. Will you please tell us your views?

A. I believe that, when nitrites are taken into the body by the mouth, that, as they pass into the stomach, and the material becomes acid, there are certain substances present in the

stomach that cause their decomposition, among others urea, which is found in the saliva, and swallowed, and becomes a part of the stomach's contents, and through somewhat similar bodies, bodies that have been called amino bodies here.

2379 Urea, it is well known, in the presence of an acid and a nitrite, decomposes the nitrous acid of the nitrite, liberating three substances, nitrogen, water and carbonic acid gas, and I believe that nitrites taken into the stomach with our food, are very largely if not completely decomposed in the stomach in this way. There is another way in which nitrites may become disposed of, and that is by the process of oxidation. There is always air in the stomach, and during the process of digestion in the stomach, the nitrites may be converted by oxidation to nitrates. This is another method of disposition, and, finally, when the nitrites pass,—if any escape these actions of the stomach—pass on into the intestines, they meet with certain microbes, some of which have the power of destroying them. The so called denitrifying bacteria, which would break them up, completely destroying them, and they, therefore, are further eliminated from the food, if they have not already been destroyed in the stomach.

Q. Have you made any experiments with animals to ascertain if met-hemoglobin is produced in the blood by small amounts of nitrites taken internally? A. Yes, I have.

Q. Well, will you please tell us what these experiments were?

A. I gave small doses of sodium nitrites to guinea pigs, and to white rats.

Objected to as irrelevant and immaterial.

The Court: He may answer. First, let me ask you, is there any urea in the white rat and the guinea pig.

The Witness: Yes, presumable there is.

Mr. Butler: What is the fact, Dr. Haines.

The Witness: I do not know from my own personal observation, but the literature states that urea is present, generally in the fluids of mammals, and therefore, in accordance with that—

Mr. Butler: In the stomach?

The Witness: I selected these guinea pigs, and I fed them in the same way, and kept them all in the same manner. To three of them, I gave every day small doses of sodium nitrites; to the other three I did not give any sodium nitrite. I
2380 gave a quantity of sodium nitrite to each guinea pig each day, corresponding considering the difference in the

weights, the body weights, equivalent to about one half a grain of sodium nitrite to a man weighing about 150 pounds. At the same time I selected these white rats, and I kept them all on the same food, and the same way. To three of them I gave small doses of sodium nitrite. To the other three I gave nothing. The three that I gave the sodium nitrite to, received on an average considering the difference in body weight, about a grain of sodium nitrite each day. This treatment was kept up for fifteen weeks. At the end of that time the animals were killed, all of them. The six guinea pigs, and the six white rats. I examined the blood of some of these animals that had been given nitrite for methemoglobin by the spectroscope. I was unable to find any methemoglobin present. I gave the internal organs of these animals to Dr. E. R. Lacount, colleague of mine in the Rush Medical College for further examination, to determine the production of methemoglobin, still further.

Q. Is Dr. Lacount present here?

A. He is present in the room.

Q. I want to ask you Dr. Haines, if you and—if it is the ordinary practice of gentlemen of your profession to make these experiments with the lower animals in order to arrive at some conclusion as to the effect of poisons and things of that kind.

Mr. Butler: I object to that as irrelevant and immaterial.

The Court: He may answer.

A. Yes, it is not only common, it is universal. We are obliged to do it. We have no other means of reaching conclusions that are absolutely definite as we have with experiments with the lower animals.

Mr. Butler: The question was was it customary. The doctor said it was, and then added that we are obliged to kill to reach absolutely definite conclusions, which part of his answer we move to strike out, as not responsive, as invading and violating the rights of a witness upon the stand.

The Court: I will let him answer.

Mr. Butler: The motion is to strike out.

2381 The Court: I will deny the motion. Go on.

By Mr. Elliott:

[A]. Doctor, we have had a lot of questions here about adding substances to foods. I will ask you what is your opinion as to the advisability of adding substances to foods.

Mr. Butler: I will object to that as irrelevant and immaterial.

The Court: Objection is sustained.

By Mr. Elliott:

Q. Assuming that the flour in this case was bleached by the Alsop process, and, as a result of that bleaching the flour contained 1.8 part per million of nitric reacting material, and that bread made from such flour contained all of the nitrite reacting material that was in the flour. What is your opinion as to the possibility of harm from the constant daily eating of such bread.

A. I do not think it could produce the slightest harm.

Q. Now, under the assumption of my last question, what would you say as to the possibility of such bread, in reference to these nitrites producing any effect whatsoever upon the system?

A. I do not think it would have the slightest effect of any kind on the system.

A recess was then taken for five minutes.

Cross-Examination

By Mr. Butler:

Q. Have you written some works, doctor, along the line of your profession? A. Yes.

Q. Name them?

A. In conjunction with Dr. Frederick Peterson, of New York, I have edited and partially written a book on medical jurisprudence, and toxicology, and I have written a part of another book, namely, Allen McClaine Hamilton's "System of Legal Medicine".

Q. I have been the proud possessor of the latter work for many years.

2382 [—]. At that temperature will urea and nitrites react within an hour of time?

A. I know that the reaction occurs within half an hour, at body temperature.

Q. Is it not true that it requires 140 degrees for an hour, and 24 hours at body temperature.

A. Not according to the results I have seen.

Q. Have you, yourself, conducted the experiments?

A. No. I have seen two of them performed.

Q. Now, do I understand that urea is the principal thing that gets rid of the nitrites in the stomach?

A. I am not sure. I believe it is one of the bodies, but I—

Q. Are you sure it is one of the bodies?

A. Yes, I feel confident it is.

Q. Are you sure it is always present in the saliva?

A. Good authorities say it is.

Q. Oh, no, no, no. Very good authorities have made very great errors, in our profession, and I mean the legal profession. I want to ask you if Walter S. Haines says that he is sure that urea is a substance which is found always in normal, healthy people's saliva.

A. If you wish my answer from my own personal determinations I should say no, because I have made no determination. But, if you wish me to answer from—

Q. (Interrupting) I told you I wish your knowledge on the subject, and not the authorities.

A. Personally I have never detected it: I have never looked for it in the saliva.

Q. Nitrites vary in amount in the saliva of the same human being from time to time, during the day?

A. Yes. They fluctuate quite widely.

Q. Especially in the morning, after you have been asleep where you have not been secreting much saliva, and the juices of the mouth have not been very abundant, or active for a good while, then when saliva starts, there is apt to be more nitrites.

A. I do not know that, personally. I have never made that test.

2383 Q. Now, you are connected with the pure food law in Illinois in some way, in an official capacity?

A. Yes, I am.

Q. You did not mention that in direct, did you?

A. No, I do not come here as a representative of that body.

Q. Well, you do not come here as the representative of any of the bodies you mentioned, do you?

A. No. But I mean I do not come in any way to represent or commit that body.

Q. You do not want your testimony here in favor of the non-injuriousness of that bread, to be taken as the view of that body. A. That is my view, yes.

Q. That is what I mean. I am very well satisfied if it be so understood. What is a deleterious substance, as applied to the adulteration of food? I do not mean, now, to go off into minute quantities or anything like that. What is applied to deleterious foods. Is it the same as poisons in your judgment.

A. Yes, strictly speaking I should say it is the same.

Q. So, there is no substance, then, in your judgment, that could not be properly called "poisons" if it was deleterious?

A. Yes, strictly speaking I should consider them the same.

Q. Are nitrites, in appropriate quantities, poisonous substances? A. Yes, they are.

Q. Such nitrites as NO₂ gas, and nitric acid and nitrous acid and the nitrogen trioxide if put in flour are of that char-

acter? I am now speaking qualitatively and not quantitatively. They are poisons.

A. I cannot quite accept all the premises of your question.

Q. I will relieve you from any embarrassment upon that subject and ask you this question. Assuming that the bleaching of this flour that was seized introduced into it nitrites by means either mediately, or directly, or NO₂ gas, HNO₂, N₂O₃ and so on. Assume that. Now, are those substances so produced qualitatively poisonous and deleterious in character as distinguished from quantitatively?

A. I do not know positively what substances are produced by the action of the gas in bleaching flour, but assuming that they are nitrites I should say that qualitatively—not quantitatively,—they are deleterious, yes.

2384 Q. And poisonous. A. And poisonous.

Q. So, that it is very important that we understand these just alike, doctor. I simply want your definition, now, as to the character of substances. Assuming that there are nitrites added to flour by bleaching then you, as a toxicologist say that qualitatively those substances are both poisonous and deleterious.

Mr. Scarritt: We object to that as repetition if your Honor please.

The Court: He may answer it.

The Witness: I beg your pardon.

By Mr. Butler:

Q. Both poisonous and deleterious?

A. Yes. I accept that.

Q. So that, we will go one step farther. If this act of Congress denounces food as adulterated which has added to it from the outside any substance of a character—that is, qualitatively—which is poisonous or deleterious, and, if it is true that this bleaching adds to the flour and the bread made therefrom a substance or substances of that kind, then, you agree with us that this food is adulterated, do you not?

Mr. Scarritt: We object to that, if your Honor please, as a comment on the law.

The Court: He may answer.

A. No, because I think the whole decision of the question rests upon the quantity.

By Mr. Butler:

Q. You misunderstood me. I ask you to assume that the law prohibits the adding of any substance of a character—

that is, which is qualitatively poisonous—Now, assume that. I don't ask you to pass upon that, because we will have to ask Judge McPherson to pass upon that. Assume that the law so says. Then you say that, if it is true, as the Government contends here that these nitrites are added to
2385 the flour and the bread, and that also be the fact, then your mind readily admits the conclusion, does it not, that the food substances are adulterated?

Mr. Scarritt: We object to that as invading the province of the jury, incompetent, irrelevant and immaterial.

The Court: He may answer.

The Witness: Accepting your hypotheses?

Mr. Butler: Yes.

A. I must agree to the latter.

Q. And, of course you are not responsible for my hypotheses. That is for us. A. I do not agree with you.

Q. We understand that perfectly well. Did you give any rats enough nitrite, so that it would be gross enough to find the methemoglobin in the blood?

A. I gave them enough nitrite so that, if that had been added to their blood, out of the body it would have produced methemoglobin.

Mr. Butler: I move to strike that out.

The Court: It may stand.

By Mr. Butler:

Q. You gave some nitrite to some rats, and you tried their blood and did not find any methemoglobin. Now, did you give them more nitrites and more nitrites, and more nitrites, and more nitrites until you got enough to find the methemoglobin?

A. No, I did not.

Q. Did you have any more rats or any more nitrites which?

A. No, I had no more rats. My experiment was not conducted on that line. I wanted to see whether if nitrites were kept up, in small quantities, over a long period of time, whether there would be a production of methemoglobin.

Q. Is it a well known fact, in your profession, that nitrites in the right amount and concentrated, will produce methemoglobin in the blood of human beings?

A. Yes. That is true, if given in sufficient amounts.

Q. That is well recognized isn't it. A. Yes.

[A.] And the change of the hemoglobin to methemo-
2386 globin is, to the extent that it takes place, injurious?

A. Yes. It is not normal.

Q. And, therefore, injurious.

A. I presume you would say it is not wholesome.

Q. Therefore, if it be true in fact—and I ask you to assume that it is true, in fact,—that nitrites, added to this flour, and in the bread, will change some of the hemoglobin to methemoglobin, it is, therefore, possible that there is an injury to the extent that it takes place.

A. Even accepting your view that some methemoglobin is formed, I should not be willing to say that small amounts formed would be injurious.

Q. It would tend to injure. That is, it would tend? It would not be normal, and it would rob the blood of that much power, wouldn't it?

A. It would not be normal, but the methemoglobin is restored to its normal condition fairly soon.

Q. Now, be perfectly fair with me, will you, doctor?

A. I am trying to be. I am trying to be fair with you and myself.

Q. Now, to be very careful about this,—the changing of the hemoglobin to methemoglobin,—now, I am speaking in the gross,—is injurious and may cause death?

A. Yes. If it be in sufficient amounts.

Q. Now, just where the death might occur might vary with individuals, or with the same individual under varying circumstances? A. I presume that would be so.

Q. Undoubtedly true isn't it? A. I think so.

Q. The most important function of the blood is to carry out the germs of the tissues. To sustain life.

A. Yes. I presume that is its—one important function.

Q. One of them at any rate. It is very important?

A. Surely.

Q. Should that power of the blood be impaired, even temporarily it is pro tanto a weakening of its power.

A. Yes, to the extent that it is impaired.

Q. And, therefore, if it be changed at all it would be impaired some, and is it not an impairment of one of the most vital fluids and tending to injury, doesn't it?

A. Yes, considered aside from all other factors.

Q. Viewed in its own light, in the light of that state of facts, other things being equal.

A. Without any further explanation.

Q. Yes. A. Without any further considerations.

Q. Is a toxic substance a poisonous substance.

A. Yes.

Q. They are interchangeable.

A. Yes, they are used interchangeably.

Q. And in the language of the works of scientific gentlemen toxic substances,—a toxic alkaloid, is the same as a poisonous alkaloid. A. That is correct.

Q. And, in the common use of language by the people, by scientists certain substances are known to be, spoken of generally as poisonous without idea of quantity? A. Yes.

Q. With the laity,—with the people generally, just as—

A. Such is the case.

Q. Well, I find this statement in your book, "System of Legal Medicine." on the third page, under the chapter, "Alkaloid, and other organic poisons," I find this statement.

"The following chemical formulae of a few of the most important toxic alkaloids." That means poisonous alkaloids does it not.

A. Yes, it does.

Q. "Are as follows" And then follows a list, aconitine, colchicine gelsemine, morphine, nicotine and strychnine. Now, in that paragraph, the idea of quantity is not, I think suggested, but you designate the substances as "toxic alkaloids".

A. I can explain the reason for that.

Q. It is a fact? [A.] I am trying to get at the fact that, in the proper use of the language, certain substances are often even by scientists in their own works called "poisonous substances". Am I not right, without the idea of quantity being interjected each moment.

A. Oh, yes. It is understood that the quantity is the governing factor, and we therefore do not repeat it every
2388 time.

Q. So by the understanding of your profession, as well as of the laity, as you are able to glean it, in your study and in your literature, and in your great works, is, that certain substances are spoken of and considered as poisonous substances in and of themselves and inherently so, as distinguished from foods and wholesome substances.

A. No, that is not quite correct.

Q. Not quite correct? Can it truthfully be said that no poison is added to food if strychnine be added to it.

A. It would depend a good deal on the way in which the term is used.

Q. Yes, but in the—now ordinarily wouldn't you say that if you analyzed some food, and found in it, we will say strychnine,—that is not normal to foods at all, is it ever?

A. No.

Q. You would say strychnine which is about the color—you get the reaction simply by color don't you?

A. That is one of our tests.

Q. That is one of the good ways, isn't it. A. Yes.

Q. Now, if you found a strychnine color, as the language is ordinarily used it would be correct to say that you found poison in the food, wouldn't it, and it would be untruthful to say you found no poison in the food, would it not.

A. Yes, ordinarily.

Q. That is so.

A. It would be correct, but there are conditions when it would not be correct to say,—

By Mr. Butler:

Q. (Interrupting) I understand you perfectly.

Mr. Elliott: Let him finish.

Mr. Butler: He says there are conditions. I am not electing to go into those conditions. I am not speaking of the popular and customary use. And doctor, to make this more concrete, now, if you were to send one of your associates, or subordinates, students to ascertain whether or not there was any poison in food,—just the “There is some food, in that sack or laboratory. Examine it for poison;” that young man found a strychnine reaction, and came back and said to
2389 you that he found no poison,—just made you a note, saying “Dear Professor: I found no poison on the suspected specimen.” You would think that he had misrepresented the truth, don’t you, if he had found the strychnine reaction —wouldn’t you.

A. Yes, without any other conditions known, I should say that he had misrepresented.

Q. Now, that is, is it not, Dr. Haines with respect to a large number of substances, aside from strychnine.

A. Yes, it is, under some circumstances.

Q. Prussic acid for example?

A. Under some circumstances, yes.

Q. I mean, comparable. Prussic acid and corrosive sublimate, and the more poisonous nitrites and so on?

A. I should not put the nitrites in the same category at all as the others.

Q. They are not so toxic?

A. No, and they are so widely distributed so commonly found.

Q. I said certain nitrites, certain of the known deadly ones, if there are known deadly ones.

A. I do not think that one nitrite is more deadly than another nitrite.

Q. I did not know about that. I thought the amyl nitrite a couple of drops of that, doctor Kempster told about he had so much trouble with the patients in the lunatic asylum or sanitarium that he had charge of,—I thought that was a pretty bad kind? Are they all as poisonous as that, and as toxic?

A. Yes, I think they are. The only reason why amyl nitrites I think produces more decided effect is, is that it is given by inhalation, and therefore does not pass through the

eliminating processes that occur when the other nitrites are given by the stomach.

Q. You argue, do you, that because we have been eating some all the time, and our fathers and mothers have done it before us, and have found it present in our tissues some place, that, therefore, it is not injurious, and may be added to our food without danger—with immunity?

A. I do, I do indeed.

A. Are there certain disease germs practically always found in the saliva?

2390 A. Not as disease germs.

Q. Well, there is the pneumonia cocci usually in the saliva?

A. Yes, but to that individual it is not—

Q. Now, let me get one thing at a time. I will give you a chance to explain and give your conclusion, but, are they usually found in the saliva? A. Yes, they are commonly found.

A. The poisonous germ of tuberculosis very often present in the system?

A. No, not commonly. They may be found.

Q. Oh, very generally; very widely?

A. As a rule the tuberculosis is found very often in the body, but the germs are not commonly found.

Q. Would you say that we breathe the germs in with the air—the tubercular germ in the city life we lead?

A. Yes, and they are strained out.

Q. I am not asking you how nature deals with them. I am not asking you that at all, but I am asking you whether or not they are in the air? A. Yes, they sometimes are.

Q. They are apt to be about Court Houses and streets? And street cars and so on?

A. Yes, they are. They are often present.

Q. They are dangerous to life, and it is one of the world's greatest activities to clean them out of the air, isn't it?

A. Yes. To prevent their getting into the air.

Q. Well, that is the same thing. And it would not be argued, would it, that the human race acquired immunity from these things that we breathe, when we get up in the morning, when we go to the Court House, and go back to lunch, and when we go home at night—it would not be argued that we are immune, or acquire immunity from those, would it?

A. Yes. We acquire a very great degree of immunity as to it.

Q. Then, it is a mistake for us to try to keep the tubercular germ out of the air, or is it one of mankind's greatest achievements for the preservation of the human race that we are, at last finding some way to lessen those things in the air.

A. There are two views to that question.

Q. What is yours?

2391 A. I am not a pathologist, nor a bacteriologist. That is a question of pathology and bacteriology, and that is not my province.

Q. I will withdraw that. Are there not other disease germs constantly breathed by us who live in urban places all the time that we do breathe.

A. There are disease germs very frequently present in the air, in the dust.

Q. In the dust and the [—] is in the air, and we take them in?

A. They are present every now and then.

Q. Along with the nitrites?

A. But the condition is entirely different.

Q. I know; I understand there are different causes. Now, it would not be argued that, because our fathers breathed the polluted atmosphere disease bearing germs, and their fathers and so on, from time immemorial, that the human race had acquired a tolerance for those germs, would it?

A. Yes, the human race has acquired a very considerable tolerance for those germs.

Q. But it would also be the part of wisdom, would it not, viewing health, having regard to health, to eliminate the germs from our atmosphere,—the disease germs I mean.

A. If we could get rid of them all finally and conclusively. I presume it would be.

Q. Well, now, if we could only get rid of half of them wouldn't that be a good idea? A. It might be.

Q. Well, don't you feel reasonably certain, with that degree of confidence that Christians are accustomed to resign themselves to the fate of their Maker,—don't you feel, if we could clear this atmosphere of half the disease germs that are there, don't you feel reasonably certain it would be a good thing for the human race?

A. I presume it would be desirable to remove the disease germs, but that is a point that I am not competent to pass upon. That is a question of pathology, and bacteriology, and they are quite at variance with the field that I have
2392 studied. Germs are in no way comparable to the nitrites.

Mr. Butler: I move to strike that out.

Mr. Scarritt: I object to it.

Mr. Butler: May it please the Court, if this witness is to be permitted to argue this case to the jury every time I ask him a question, as to whether bacteria germs are comparable to a nitrite in flour—

The Court: Yes, the last part was hardly responsive.

Mr. Scarritt: We except to the ruling.

By Mr. Butler:

Q. Now, doctor, I will ask you frankly, do you feel obliged while you are upon the stand here, to argue the effect of any answer you may make to the jury?

Mr. Scarritt: We object to that question.

The Court: He may answer.

The Witness: No, only I do not wish to be misrepresented.

Q. I am not going to misrepresent you.

A. I do not want to have my views go to the jury in a way that are not correct.

Q. Now, if it is a good thing to keep diptheria out of the air, you are willing to state that, without making a speech, that it would not be good to take nitrites out of the air? Now, I want to find out whether you are going to insist upon arguing, by way of argument, instead of by way of imparting your professional learning in this case. So far, we have gotten along pretty well, but I will say I do not want you to argue in favor of bleached flour when I am asking you about these scientific matters. If you feel that you must, you and I will terminate our relations very shortly.

Mr. Scarritt: We object to that because, unless there is some reference to the nitrites we are talking about, the question has no relevancy to the issues in this case.

The Court: The objection is overruled. He may answer.

The Witness: Did you ask me a question.

By Mr. Butler:

Q. I will ask you one now. Does the human system become accustomed to the toxin, the pneumo coccus,—

2393 Mr. Scarritt: Same objection.

The Court: He may answer.

A. Yes, it does.

Q. And acquire practical immunity for a time?

A. It does.

Q. And, having due regard for health, do you think they should be put in our food, put in our rooms at night, keep on increasing and increasing on the doctrine that, because we are used to them they would not hurt us?

Mr. Scarritt: Objected to because it has no relevancy to the issues in this case.

The Court: Objection overruled.

Mr. Scarritt: We except.

The Witness: I do not know that I followed your question.

Q. Is there any immunity known to pneumo cocci, scientifically and professionally?

A. Yes. After a person has received the toxins of pneumo cocci, there is an immunity established for a certain length of time.

Q. And then? A. Then he loses that immunity.

Q. So that it is a part of wisdom to destroy the pneumo cocci, and to keep them out of our air, and food, isn't it?

A. Yes, it is.

Q. What is it? A. Yes, I consider it so.

Q. And that is true, relatively of all disease bearing impurities in the air, isn't it?

A. That is my own view. I am not a pathologist as I said before.

Q. Now, your answer that this bread, made from this bleached flour would be entirely harmless, was based upon the idea of the quantity of nitrites assumed to be in it?

A. Yes, to a great extent.

Q. Well, wholly, wasn't it? If there is enough nitrites it might become injurious.

A. Yes, if in sufficient amounts. It might then become injurious.

Q. Now, as to whether or not it would be injurious to me would depend upon my condition and power or resistance? A. Not this quantity.

Q. No, no, no. Whether a given kind of nitrite will depend upon the power of resistance, will it not?

A. Yes, as to the amount that might be required, it would depend upon the individual to a certain extent.

Q. Some people are very sensitive to poisons are they not—become sensitized so to speak, highly?

A. Some are more sensitive than others.

Q. Very much more?

A. Yes, there is a considerable degree of difference.

Q. And a dose of nitrites that might be wholly uninjurious to me might strike down just a big a man and just as healthy a man and kill him.

A. No, I do not think that the quantity that would not be injurious to you would kill another person.

Q. It would be relatively harmless, or slightly harmless that I could take without danger of life, I will put it?

A. Yes, a quantity that you might take without killing you might kill another person.

Q. Now, the toxicity of certain substances are affected by circumstances surrounding, and the presence of other substances?

A. Yes. The surroundings have something to do with the toxicity to some extent.

Q. Morphine is sometimes given as medicine, is it not.

A. Yes.

Q. Apomorphine? A. Very rarely.

Q. How. A. Very rarely.

Q. Occasionally. A. Yes.

Q. Under proper conditions nitrites may multiply the toxicity of apomorphine, two or three thousand per cent, may it not? A. I do not know that personally.

Q. Well, you understood it may be increased by it,—do you not?

A. I have seen a statement to the effect that the action of apomorphine may be increased by nitrites, but I do not know, personally.

Q. Didn't it state it to the degree of six thousand per cent?

Mr. Scarritt: He says he don't know, if your Honor please. And we object to it.

Mr. Butler: I am trying to refresh his recollection.

The Court: He may answer.

Q. Six thousand per cent?

A. I don't remember the per cent, but I do not think that figure is correct.

Q. Sir.

A. I don't remember, but I do not think that figure is correct.

Q. What figure do you think is correct?

A. As I recollect it it was perhaps three or four hundred per cent, but I do not think it was six thousand per cent.

Q. You would not be clear about that, would you?

A. No, I am not sure about it.

Q. Now, suppose I was unfortunate enough not to have any urea in my saliva, and the nitrites added to this bread on Mr. Elliott's hypothesis would not be neutralized by the urea, would there, to the same extent as if I had it in my saliva?

A. If you did not have it in the saliva, and did not have it in the gastric juice either, so far as the urea is concerned, of course that element of neutralizing nitrites would be eliminated.

Q. Do you agree that it would be perfectly safe, if they would spray the flour with urea after it has been bleached, so as to neutralize the nitrites before we use it to make bread?

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

The Court: He may answer.

Mr. Scarritt: We save an exception

Q. Do you think that would be a good thing as Dr. Webster did?

A. No, I do not think it would be a good thing, because we should be introducing more urea into the system, and we do not need it.

Q. But, haven't we been secreting urea ever since Adam was young? A. Yes, that is quite true.

Q. And haven't we acquired perfect tolerance for urea?

2396 A. Certainly so.

Q. Then urea is not any worse than a nitrite, is it?

A. No.

Q. Then, if it is bad to introduce additional urea into the system by spraying it on the bleached flour, why isn't it bad to introduce nitrites into the flour that they make in bleaching flour?

A. Because nitrites accomplish some useful purpose and the urea would not.

Q. What useful purpose do the nitrites accomplish?

A. I don't know as I could say nitrites, but the bleaching of the flour is a useful purpose, and the nitrites come, if there are nitrites from accomplishing that useful office.

Mr. Butler: I move to strike out this statement that this bleaching of flour is useful.

The Court: It may be stricken out.

By Mr. Butler:

Q. Now, that is not a question in toxicology, is it, doctor?

Mr. Scarritt: We object to that.

Mr. Butler: Nor pharmacology nor pathology, nor histology nor legal medicine?

A. I did not wish to be misunderstood.

Q. And I don't wish you either, to come in here and say that it is useful to bleach flour. That is not what you were called for, and I did not ask you that. Now, how many times have you defended the side of the flour bleachers in various controversies?

A. Twice.

Q. Where?

A. At Fargo, North Dakota, and at Washington in the hearing before the Secretary of Agriculture.

Q. At Fargo it was in a case of the Russel-Miller Company against Ladd, the pure food commissioner, in which they attempted to enjoin him from enforcing the Pure Food Law of North Dakota against adulterating flour by bleaching it? That was the place, time, and issue, wasn't it?

Mr. Scarritt: We object to that as incompetent.

The Court: He may answer,—if I understand he is
2397 merely identifying the time and the case.

The Witness: I am not sure about the title of the case.

Q. It was a milling company up there? A. Yes.

Q. They tried to enjoin the Pure Food Commissioner, and you are sure of his name.

Mr. Scarritt: We object to that as incompetent, irrelevant and immaterial.

A. I know it was a case of some milling company against either the state or the Pure Food Commissioner.

Mr. Butler: How long did you remain there giving your testimony and aiding the plaintiff in that suit?

Mr. Scarritt: We object to that as immaterial.

The Witness: I think I was there probably—

Mr. Butler: Practically the whole trial?

A. Oh, no, Oh, no. Probably—possibly five days. I am not sure. It may have been four. I could not tell you. It was by no means during the whole trial.

Q. How long did you remain during the hearing at Washington? During the whole hearing? That was on the occasion Secretary Wilson heard the millers on that matter, and you took part for the bleachers?

Mr. Scarritt: We object to that as immaterial.

The Court: I will have to say this, Judge Scarritt. That pretty nearly every question that is asked, you say something, and I do not know what it is. Almost every question that is asked you say something, and I do not know what it is. I do not know what it is you say. I say now and here that if it should ever become necessary or desirable to have a record on this matter there will be no exceptions allowed that I have not had brought to my attention.

Mr. Scarritt: To this line of testimony we have objected all the time.

The Court: You have been objecting all the time?

Mr. Scarritt: And still want to object.

The Court: I did not hear it, and the record will not
2398 show things I cannot hear.

Mr. Scarritt: Your Honor has ruled on most of them.

The Court: You cannot sit within a few feet of the stenographer, and make up the record on me. I do not mean to say you are doing it. Go on.

Mr. Scarritt: We would like to have a ruling on this.

The Court: The objection is overruled.

Mr. Scarritt: We except.

By Mr. Butler:

Q. If you have the question in mind, Dr. Haines, you may answer it. I think I asked you whether you stayed during the whole hearing before the secretary when the bleachers and the government pure food men had the hearing there about this flour bleaching?

A. Yes, I was there during the entire hearing.

Q. You have attended this trial—you have been here about three or four weeks altogether, haven't you?

A. Oh, no. I was called down—

Q. How long have you been here. No matter about being called down. How many days have you been here.

A. I could not tell you, offhand.

Q. Is it less than twenty? A. I think so.

Q. Your testimony in direct examination, aside from your qualifications, did not consume twenty minutes, did it?

A. I did not note the time. It was not long.

Q. Now, before the Secretary of Agriculture, did you promote the idea that urea in the stomach was one of nature's defenses to nitrite? A. No, I did not.

Q. Did you before Judge Pollock, at Fargo?

A. No, I did not.

Q. Did you ever, on any other occasion, in your studies and researches of this.

A. No. It is something that has come to me within a comparatively short time.

2399 Q. Since this trial commenced? A. Yes.

Q. Do you remember when during the trial?

A. Yes, I can tell you exactly how it happened. When I heard the testimony concerning the disappearance of nitrites during the process of digestion in the stomach, it became evident to me that there was something there that destroyed the nitrites.

Q. Whose testimony was that?

A. It was the testimony of various witnesses.

Q. Dr. Wesener? A. Dr. Wesener.

Q. Teller? A. Professor Sayre.

Q. Teller?

A. And Prof. Teller, and Prof. Emerson, and I knew of the experiments of Dr. Webster, and I felt convinced that there was something there that destroyed the nitrites, and upon reflection it came to me suddenly that the destruction was due to the well known action of urea and other similar bodies upon nitrous acid and nitrites in the presence of acids.

Q. And suppose that testimony was not reliable. Suppose Wesener's experiment was not reliable, about the disappearance of the nitrites. Then how about your urea.

2400 Mr. Scarritt: We object to that as a comment on another witness' testimony.

Q. Suppose it was not true. Suppose those facts were not justified, then what?

The Court: He is not commenting upon the other witness' testimony. He may answer.

Mr. Scarritt: We save an exception.

By Mr. Butler:

Q. Suppose it was not true that the nitrites disappeared from the stomach. Then what?

Mr. Scarritt: Same objection.

Mr. Butler: Then your urea theory would not do, would it?

A. If, as a matter of fact the nitrites do not diminish in amount in the stomach digestion, then my theory would of course, not be true.

Q. Are nitrites sometimes absorbed from the stomach into the blood? A. Yes.

Q. And if they had been absorbed before you pumped them out, you would not pump them out would you,—when you pumped out the stomach you would not pump out the nitrites, would you?

A. Oh, if they had been completely absorbed of course there would be none there to pump out.

Q. And that would render the theory that urea destroyed them worthless, wouldn't it?

A. No, sir, no. I think you misunderstood me.

Q. Many poisons get to the blood in much less than a half an hour, do they not, after being taken into the stomach?

A. Yes, a number.

Q. A large number? A. Not necessarily.

Q. Do they not, after taking into the stomach?

A. Yes, a part.

Q. And a large part? A. Not necessarily.

2401 Q. In some cases does a large part of deadly poisons absorb within a half an hour?

A. A part, but by no means necessarily—

Q. (Interrupting) You did not hear my question.

A. I beg pardon.

Q. I asked you if it was true in some cases that a large part of poisonous substances are absorbed within a half an hour? A. Yes, sir, in some cases.

Q. How long does it take a drop of prussic acid, dropped on the tongue, to absorb in large part?

A. Part of it is absorbed very rapidly.

Q. The man will fall quicker than if he is shot, if there is enough of it on the tongue, wouldn't it Just as quick as if he is shot through the heart.

A. He will fall very rapidly.

Q. Now, would the safety of taking poison in food depend upon the character of other poisons taken in other foods?

A. I do not think I—

Q. Would the safety of taking poison in food added to it to make it look better, depend upon the character and quantity of poisons taken in other foods to make them look better, added to them to make them look better.

A. Did you ask me whether it would depend?

Q. Yes. A. Why, not necessarily so.

Q. Would it be a factor? For example I have taken all the poison I can stand in my butter, and my milk, and my corned beef, and cabbage, all that nature has provided a defense for, then, might it not be more dangerous, under those circumstances where my power of resisting the poisons has gone to the limit, to add some more poison to some other food to make it look better?

A. Yes. Under the conditions of your question, that is true.

Q. Now, is it not true that, common articles of diet, which we use, and which are known by gentlemen in your line of business to be adulterated by injurious substances like formaldehyde and chromate of lead, and copperas, and sulphate, and nitrites, and so on. Is it not true that that
2402 joke may be carried too far, and injure the health of the people, where you could scientifically swear that no one substance was rendered injurious to health.

Mr. Scarritt: We object to that if Your Honor please if not pertinent to any of the issues in this case.

The Court: He may answer.

A. Yes, if there were deleterious substances in all the articles that you mention, they might produce a collective action.

Q. And render what would be harmless without it very dangerous? A. I should not say very dangerous.

Q. Injurious to health? A. Unwholesome.

Q. Unwholesome and injurious to health? A. Yes.

Q. Now, Doctor, I will ask you if it is not the greatest concern that we, of this generation have upon this earth, is to preserve the health of this generation, and the next succeeding one?

A. Yes, it is.

Q. And do you not think that pure food, unadulterated food, food free from added poisons is one good means of preserving the health of this race, and preserving this race for this earth?

A. Of course, my answer, I must know in what way you use the term "poison" there.

Q. I mean a little poison. Just a little to make it look better, and a little, and a little, and a little, in all things we eat; our milk, our buttermilk, our bread, our meat, and our preserves, our fruit, our coffee, and, to those wicked men who use it, our whiskey, and the other wicked men who drink it, arsenic to the beer. Do you think that that sort of thing can be carried on to such an extent that the safety of the race in respect to health will be at stake. Do you think that possible, without putting a deadly dose in anything.

A. Yes. It is. I would be glad, if you would let me
2403 express my opinion.

Q. I will ask you to answer my question?

A. Yes. I do not believe in adding substances that are deleterious to food.

Q. Now, formaldehyde is a deleterious substance, by nature, isn't it?

Mr. Scarritt: We object to that as being immaterial to this case.

The Court: He may answer.

The Witness: Yes, in sufficient quantity.

By Mr. Butler:

Q. So are nitrites in sufficient quantity.

A. In sufficient quantity.

Q. So is chromate of lead?

Mr. Scarritt: We object.

The Court: He may answer.

A. Yes, that is true.

Q. So is borax?

Mr. Scarritt: Same objection.

The Court: He may answer.

A. Yes, it is.

Q. Sulphites. A. Yes.

Q. Sulphates of copper?

Mr. Scarritt: Same objection.

A. Sufficient quantities, yes.

Q. Ammonium flouride? A. In sufficient amount, yes.

Q. Saccharine. A. Yes, in sufficient amounts.

Q. You do not agree that that is wholly harmless, do you. You think that is a deleterious substance, like these others.

A. In large enough amounts, yes. Not in small amounts.

Q. Now, if it should appear to you that by adulterating foods to make them look better there were 15 poisonous substances added to our breakfast, seventeen to our dinner, and twenty two to our supper, making fifty five doses per day of these substances, each one of which you would say in appropriate doses will have no injurious effect—now, if that sort of thing happens, don't you think it is time to stop adding any more poisons to our food.

Mr. Scarritt: Same objection if your Honor please.

The Court: He may answer.

A. It depends upon the amount that is present in each of these foods.

Q. Well, let the amount in each one now, of the 55 doses, per day—and I will not take time to enumerate, the customary articles of diet,—you are familiar with the things that are used for adulteration, I suppose?

A. I am with most of them.

Q. Now, these things that I have mentioned have been used within your knowledge or by common repute.

Mr. Scarritt: Same objection.

A. Yes, they have been.

Q. And still are used in various things. Now, let us say, doctor, that in each of the fifty five quantities which I have called doses, there was just as much of the poisonous substance as you could say, standing alone, was not injurious. Now, assume that to be the fact.

A. The upper limit?

Q. Which would reach the limit of safety. A. Yes.

Q. Now, will you not say that, under those circumstances, the adulteration of the whole food to the extent of fifty five

doses was a great attack upon public health, and very dangerous? A. Yes, under those conditions.

Q. Now let us come down a little. Suppose each dose was only half up to the limit of safety. Your answer would be the same? That it would be injurious to health because you had twenty seven doses.

A. We do not know surely that those different poisons pile up on each other.

Q. Let us take the same one, then.

A. Yes, if you take the same one, that is true.

2405 Q. Chromate of lead? A. Yes, that is true.

Q. So as to get rid of the antidote effect. Some might antidote the other, that is your idea. A. Yes.

Q. But we will get rid of that by taking the same one and then you think it would be very unwise, do you not to add poisons to food, to such an extent, of various kinds, that we would have to rely upon one antidoting the other. You think that would be awful. A. That would not be desirable.

Q. It would be awful, wouldn't it?

A. Yes, I should think so.

Q. You think the poisoning of people is a very bad thing, don't you, doctor? A. Yes, I certainly do.

Q. Either poisoned to death, or at all. A. Certainly.

Q. So that if we were to take one tenth of the limit of safety, and there are fifty-five doses in a day's diet, surely you would say it would be injurious to health, and poisonous to the public, wouldn't you.

A. Under those conditions it would be.

Q. Therefore, does it not follow, from the standpoint of public health, the only safe course is to exclude the addition of poisons to the food, in every possible instance, and every possible form, and with respect to all the quantities?

A. No, I do not agree to that.

Q. You do not agree to that? A. No.

Q. You think that the public requires that poisonous substances be added to our foods?

A. If they serve a useful purpose.

Q. Would a commercial purpose justify putting poison in the stomachs of my children?

A. I do not know as I should say a purely commercial purpose would, but commercial purposes are usually dependent upon the personal advantage.

Q. You are familiar with the general appearance of wheat flour? A. Yes.

2406 Q. Now are you answering all my questions candidly, and you know about the bread of the country, how it looked before 1904, or 5 or 6, whenever it was that the bleaching was introduced in this country, don't you? A. Yes.

Q. Now, assuming it to be true, as Dr. Allway told us it was true, the chemist from the Agricultural College of Nebraska whom I have no doubt you met,—assuming it to be true that the only excuse in God Almighty's earth to reduce the coloring to the degree that it is now reduced,—now, assuming that to be the naked unvarnished and unqualified truth, now, in view of your knowledge of how the foods are poisonous either by additions or decay or impurities, I want to ask you if you believe any such consideration as that would justify putting poisons into the stomachs of our people?

Mr. Searritt: We object to that, if your Honor please, as having no relation to the issues in this case.

The Court: He may answer.

Mr. Butler: From the standpoint of health, always.

A. The color of the bread has much to do with its appetizing properties, and, therefore,—

Q. Just wait a moment, doctor. I want you to answer my question, either yes or no, or say that you don't know.

A. I cannot answer it yes or no.

Q. Well, let it go. We will not listen to the lecture upon color and appetizing effects.

That will be all Dr. Haines.

Redirect Examination

By Mr. Elliott:

Q. Dr. Haines, do you make a distinction between these substances that have been put to you like lead and formaldehyde, and I can't name them all, but those various substances Mr.

Butler has been talking about, and the substances such
2407 as nitrite, as to properties, and so on, and if so, you may state what distinction.

A. Yes, I make a distinction between substances like lead chromate and formaldehyde, which are not naturally found in the body, and substances like nitrites which are naturally found in the body.

Q. You have stated to Mr. Butler that, qualitatively, nitrites, nitrous acid and nitric acid were harmful and poisonous.

Mr. Butler: Poisonous and deleterious.

By Mr. Elliott:

Q. Yes, sir, qualitatively. Now, I will ask you if that has any reference to whether such substances are necessarily harmful in appropriate quantities.

A. No, not at all. Quantitatively they may be absolutely harmless. They may be destitute of all harm.

Q. From your general knowledge I will ask you if you have any doubt as to the existence of urea in the saliva and in the stomach? A. I have not.

Q. What would be the basis on which you would approve of the addition of some substances to foods, and disapprove of the addition of others?

Mr. Butler: You mean poisonous substances, Mr. Elliott?

Mr. Elliott: Such substances as you have been discussing with the witness. I am not going into explanations.

A. Substances as are naturally found in the body, and to which the body is accustomed, like benzoate of soda, and nitrates, and saltpetre in small amounts, I should regard as not injurious additions. But, substances that are totally foreign to the body like chromate of lead, and formaldehyde, and the like, are in a different category, and I should regard as a very questionable desirability any addition. There are, I might say, conditions, however, in which I believe, even these substances, or rather formaldehyde, is used.

2408 Q. Will you give us your opinion,—the conditions?

A. I think, for instance, when it is impossible to get a pure milk supply—

Mr. Butler: Just a moment.

The Court: Pure. What?

Mr. Butler: Milk supply. This is a justification of putting formaldehyde in milk to make it better and I don't think that it is in this law suit in any form.

The Court: I will let him answer.

A. I think that when it is impossible to get a pure milk supply, and to keep it in a wholesome condition by proper refrigeration I believe that the addition of a little formaldehyde is better than to use that milk in an unsanitary, decomposing condition.

The Court: Suppose you put enough formaldehyde in it to keep it from souring from one, two or three days in warm weather.

A. If I may explain. Your Honor, I should not say to have it added at all, if we can keep it in any other way but if conditions are such you could not keep it by cold,—

The Court: Now, for instance, recently,—not in this town, because I like these hotels, here, but in an Iowa Hotel I had a glass of milk, and set it for five days in a hot window, and it did not sour. What would you say about that.

A. I should think there was too much added. That would be an excessive usage. I trust you do not misunderstand me.

The Court: It is a question of whether you would throw the milk away or put a little formaldehyde in it.

A. Yes.

The Court: Then it would practically come down to going somewhere else to get your milk.

2409 By Mr. Elliott:

Q. Is there any relation between the processes which established tolerance for drugs, and minute quantities of infectious diseases or disease breeding germs.

A. Well, in some cases I presume the mechanism is very similar. In others it is different.

Q. Under what conditions, Dr. Haines, would it be proper to say that strychnine for instance was not a poison.

A. If it was being given as a medicine in medicinal doses, you would not call it a poison.

The Court: For what; heart action?

A. For any purpose whatsoever, as for the heart, or to build up, or for any other additional purpose.

By Mr. Elliott:

Q. In its use in that way does it act as a tonic, could you tell us. A. Yes, it acts as a tonic.

Recross Examination

By Mr. Butler:

Q. Now, doctor do you think it is safe to leave it to the dairymen to say how much formaldehyde they will put in our milk?

Mr. Scarritt: We object to that as immaterial.

The Court: He may answer it.

The Witness: No, I do not.

Q. Do you think it is safe to leave it to any tradesman to say how much poisonous preservatives he will add to any particular food. A. No, I do not.

Q. Is carbolic acid usually found in the body?

A. Carbolic acid?

Q. Yes.

A. Certain derivatives of it are found in the body.

Q. Poisonous?

A. Yes, in sufficient dose carbolic acid is.

Q. Methyl mercaptan? A. Yes, I think it is.

2410 Q. The fact they are customarily found in the body would not justify the addition of them to food?

A. It would depend upon the quantity and whether any useful office was performed.

Q. But assuming that no useful office would be performed.

A. No.

Q. Except to sell goods?

A. If no useful office is performed I should not consider it proper.

Q. Now, there are noxious poisons are they not, in sufficient quantities.

A. In sufficient quantities.

Q. The body generates poisons, in it excretions?

A. Yes.

Q. Certain organs are there for the purpose of getting them out before they kill us? Isn't that true.

A. Yes, that is true.

Q. Now, the fact that they are present from birth to death in supposedly healthy human beings does not argue that we should leave it to merchants and others to add it to the foods if [—] could sell it better by adding it, only for that reason does it?

A. If that is the only reason, I should not consider it proper.

Q. Now, if you found one one hundredth's part of strychnine in the stomach of a man who was dead could not you conscientiously swear you found poison in the stomach?

Mr. Elliott: I object to that as immaterial.

The Court: He may answer.

A. I should want to know the history of the case before I would be willing to report.

By Mr. Butler:

Q. Suppose I took a stomach down to your laboratory, and said "I suspect somebody has been poisoning this man and I want you to see if you can't find any poison", and you

2411 found 1/100 grain of strychnine, which is very much less than a medicinal dose, isn't it.

A. We sometimes give 1/100 of a grain, and sometimes give very much more.

Q. 1/60th of a grain is a medicinal dose?

A. Even give more than that.

Q. Could you conscientiously say you found poison in him. Would you say you had. Would you say you had not.

A. I presume that if I knew nothing whatsoever about the history of the case I should say I found poison there.

Q. How much hydrocyanic acid or prussic acid did you find in the stomach of Swope, who recently died.

Mr. Scarritt: We object to that as immaterial.

The Court: Yes, I think so.

By Mr. Butler:

Q. Suppose you found 1/200th part of a grain in the stomach of prussic acid, would you say you found poison in it?

A. I should have to know many surrounding conditions before I should be willing to say I did.

Q. So then if I took you a stomach and said "Here is a stomach, doctor. Is there any poison in it." And you found 1/200th part of a grain of prussic acid in it, you could not answer my question until I told you where I got the stomach.

A. I would like to modify my answer a moment ago. I did not observe sufficiently carefully the quantity indicated. I think if I found 1/200th of a grain, I should say I found poison, about prussic acid. It comes into the stomach from some foods and therefore—

Q. (Interrupting) That distinguishes it from strychnine.

A. Yes. 1/200th of a grain, I should think I would say I found poison, but I should want to know what food the person had taken.

Q. The most poisonous stuff known is aconitine?

2412 A. Yes, probably is the most poisonous of the deadly poisons.

Q. Now, my body weight of aconitine about 200 pounds, has toxicity, if administered, to kill every member of the human race, hasn't it.

A. I should have to make some calculations.

Q. I think it was the weight of ten men, two thousand pounds instead of one man?

A. We commonly believe that from 1/15 to 1/30th of a grain of pure aconitine may kill.

Q. And you have so reported in your legal medicine?

A. That is correct.

Q. And reported it to be the most deadly poison?

A. Yes.

Q. Now, if you found half that amount in the body, if such a thing is conceivable, you would think you found a poison in the body, wouldn't you?

A. Certainly should.

Q. And to say you did not would be misleading, would it not. A. It would.

Witness Excused.

Walter M. Cross, a witness for claimants, being recalled, was examined, and testified further as follows:

Direct Examination

By Mr. Elliott:

2413 Q. I hand you a flask, marked claimants exhibit 280, and ask you to state what it is, and where you obtained it, and under what conditions?

A. This flask contains some gas obtained from an Alsop bleaching apparatus, at the Rex mill, on the 25th day of June, 1910. It was obtained at the outlet or a plug near the agitator.

The Court: Between the electrifier and the agitator?

The Witness: Yes.

By Mr. Elliott:

Q. I will ask you if, when you obtained that specimen of gas, you asked the attendant that you might get it from the same place and under the same conditions as was the gas that was obtained by the Government's experts, when they visited that mill?

A. We asked the attendant to obtain this—

Mr. Butler: (Interrupting) I will object to the conversation.

The Court: Go on.

The Witness: From the same orifice, and he showed us the plug.

The Court: It is not necessary to describe the orifice.

By Mr. Elliott:

Q. Tell us how you got the gas in there.

A. We had a two-hole stopper in this flask, and a tube running to the bottom of the flask, one, and another just over the stopper, both tubes running through the stopper, of course, and they were air-tight. Then with an aspiration apparatus, we pulled through the air-tight connections from the plug that was inserted in this pipe which I mentioned before, the gas, first through the long tube—that is, blowing the gas from the Alsop bleacher in the bottom of the flask, and, on account of the fact it was warm, we held it up-side down, so it
2414 would fill the flask full, and we pulled two litres, or twice the volume of this flask, of the gas, from the Alsop bleacher, through it, so this was the pure, undiluted Alsop gas.

Q. Did you do anything other than you have stated? Was there any filtering, or anything of that sort, done?

A. No, sir. This was through air-tight connections, altogether.

Q. Gas, just as it come from the pipe? A. Yes, sir.

Mr. Elliott: We introduce this as an exhibit.

Mr. Butler: I would like to cross-examine, before this is received.

Cross-Examination

By Mr. Butler:

Q. When you say "we", whom do you refer to?

A. There was with me at the time Prof. Kizer, I believe.

Q. Who? A. Kizer.

Q. Where from? A. I believe he was from St. Louis.

Q. When was this? A. On the 21st day of this month.

Q. Who else? A. There was also Mr. Friend.

Q. Who is Mr. Friend? A. I don't know.

Mr. Scarritt: He was on the stand.

The Witness: I don't know anything about that. And there was a Mr. Mitchell.

By Mr. Butler:

Q. Who is Mr. Mitchell?

A. I don't know anything about that, other than I recollect his name was Mitchell.

2415 Q. A tall, good-looking man?

A. Yes, he was very fair looking.

Q. Go on. Was it the Alsop Mitchell?

A. I think it was the Alsop Mitchell.

Q. Go on.

A. I think there were just the four of us—Kizer, Friend, Mitchell, and myself.

Q. Where has the bottle been ever since?

A. I couldn't say where it has been all the time, but it was on the shelf in my laboratory part of the time.

Q. Is there a removable cork in the bottle?

A. No. I sealed it, myself, and marked it, there. It has not been opened.

Q. Is that cork sealed in, now? A. Yes, sir.

Q. With wax? A. White wax.

Q. When did you seal it? A. At the time.

Q. Out at the mill? A. Yes, sir.

Q. How much gas did you pull through that bottle?

A. A little over two litres, or twice the volume of the flask.

Q. What will the flask hold? A. A litre.

Q. So, you pulled through the bottle, twice its own volume?

A. Yes, sir.

Q. What for?

A. It just happened to be I had an aspirator that had that much water, and I let it run all out.

Q. You had an aspirator that contained that much water?

A. Yes, sir.

Q. Why didn't you have a larger aspirator?

A. It was one I happened to have. I don't know why I didn't have a larger or smaller one.

Q. The purpose of that was to exhaust all your air out of the bottle?

A. It was to get the air out of the flask; yes, sir.

Q. You had to get the air out of the bottle, did you?

A. The air had to come out of the bottle.

Q. And the gas in? A. Yes.

2416 Q. Now, suppose you didn't get all the air out of the bottle; then what?

A. I haven't thought about the contingency of that not all being out of the bottle.

Q. Suppose you had taken none out of the bottle. Then what?

A. The air had to be, in this case, I considered, all out of the bottle.

Mr. Butler: I move to strike that out.

Q. Now, suppose you hadn't taken any of the air out of the bottle; then what?

Mr. Scarritt: We object to that, if your Honor please. He said he did take it out.

The Court: He may answer.

Mr. Scarritt: We except.

A. I didn't understand the question.

By Mr. Butler:

Q. What effect would that have had upon that quantity,—the quantity of bleaching gas you got in here? Why didn't you just go and turn the bottle up-side down, and let the bleaching gas flow in? What did you want to go through this aspirating business for, if you wanted to get the air out of the bottle?

A. I wanted to get the air out of the bottle; certainly.

Q. Now, suppose you hadn't taken the air out of the bottle. How would that have affected your experiment, do you know?

A. With regard to what?

Q. With regard to what you got in the bottle.

A. With regard to whether I got bleaching gas into the bottle?

Q. Yes.

A. If there had not been any air taken out, no bleaching gas would have come in.

Q. So, if you only got half the air out, you wouldn't have got the pure bleaching gas, would you? You would have only

got it half full of bleaching gas, and diluted that much? Isn't that it?

2417 A. If half the air was taken out, then only that part that was taken out could be replaced by bleaching gas.

The Court: Is this bleaching gas heavier than air?

The Witness: When it was hot, it was lighter than air.

The Court: Couldn't you just pour it in, and drive the air out?

The Witness: When I pour it in relatively hot, it would drive the air out.

By Mr. Butler:

Q. Wasn't there pressure in the pipe? Wasn't there a blast of air going through the pipe all the time?

A. There was some pressure.

Q. And, without regard to whether the gas was lighter or heavier than air, if you had emptied your bottle, the gas would go up into the bottle, because, with the air out, there would have been no pressure, and you would simply have had a vacuum?

A. If I had exhausted all the air out of the bottle, and made a vacuum in there.

Q. Then the gas would have gone in there, under normal conditions?

A. The atmosphere would have rushed it in.

Q. It would have gone in there under the pressure, and the pressure you would have been the same in the bottle as in your pipe? A. Yes.

Q. Now, if this experiment of yours resulted in leaving some of the normal atmosphere in there, this would not show the density of the gas that was passing through the pipe at the time you made the examination, would it?

A. If very much atmospheric air was in the flask, it wouldn't show the density.

Q. It wouldn't, if there was any, and the more it was in there, the more it was diluting the gas? That's true, isn't it?

A. To the degree it was in there, it would dilute the gas.

Q. You do not pretend you got a vacuum in that flask by the aspirator?

2418 A. No, sir; it was not a perfect vacuum.

Q. If it had been a perfect vacuum, the air would have been withdrawn, would it not?

A. If there had been a perfect vacuum, there would have been no air in the flask.

Q. How many agitators were running when you were there?

A. As I understood it, there were—

Q. (Interrupting) Well, do you know? I will withdraw that question. Do you, yourself, know how many agitators were running—were receiving gas? Do you, yourself, by personal observation, know that, and not by what you were told?

A. At the time, there was no agitator—

Q. (Interrupting) Wait a moment. I ask you if you do know this. You know, or you do not. Now, which is it?

A. Know what?

Q. How many agitators were running?

A. Only so far as I could judge by the belts running, that day.

Q. You know that the gas might be turned off without stopping the agitator from working don't you? You know that the cock might be turned in the pipe, without knocking the belt off the wheel, don't you?

A. Yes, sir.

Q. So, you don't know how many agitators were receiving the bleaching gas, do you, yourself?

A. Yes, I knew how many were receiving it while I was doing that.

Q. Do you know that, yourself? A. Yes.

Q. Did you, yourself, shut off any or open any, or try any cocks, or look at any cocks, to see if they were closed, and to see if some were open?

A. I examined the orifice to find out.

Q. How many orifices did you examine?

A. The one into which this apparatus—this plug from
2419 which we took this, came out, and smelled of the gas, and assured myself it was this gas.

Q. You knew the gas was coming out of there?

A. Yes.

Q. But you don't know whether it was coming out in two agitators, or three agitators, or four agitators?

A. The man shut the valves off.

Q. Did you see that?

A. I saw him shut the valves off.

Q. Now, where you were taking this, could you see the electrifier as they call it—the gas machine?

A. I saw the gas machine as I came up to the—

Q. (Interrupting) From where you took this gas, could you see the gas machine?

A. No. I couldn't see the gas machine while I was taking it out.

Q. Do you know that a mere turn of the cock on an intake pipe—the valve of an intake pipe, will control the density of the bleaching medium?

A. Yes, sir.

Q. Did you examine that?

A. Yes, sir.

Q. Was Mitchell with you when you did that?

A. Mitchell was somewhere in the building.

Q. Where was Mitchell when you were taking that gas?

A. I don't remember.

Q. You don't remember? He may have been at the agitator? May he not?

A. He was there on that floor, some place. The agitator was on the floor below. We went down there below and looked first, at the amperage.

Q. What was the amperage? A. Between 4 and 5.

Q. What was the horse-power?

A. It was about 110 volts. 5 amperes. About 500/746ths of horse-power.

Q. That is, at the place where they make the gas?

A. Yes. Making and breaking it.

2420 Q. So that would be about 5/7th of one horse-power?

A. Something like that.

Q. That was used there to make gas?

A. Approximately.

Q. Now, whether that gas went into four agitators, or three agitators, or two agitators, or one agitator, and how the valve was on the intake pipe, you, yourself, don't know, of personal knowledge?

A. We assured ourselves the man closed the valves. We watched him.

Q. Now, did you assure yourselves that somebody didn't go around and change the rigging, and open this valve, and control that gas while you were taking it out? A. Yes.

Q. How did you assure yourselves of that?

A. We watched the whole thing.

Q. Who was doing that? Mitchell helped you watch, to see that the gas came out right?

A. I don't know what Mitchell was doing, but I was watching, and Kizer was watching.

Q. This thing is on another floor, you say?

A. This apparatus, down below? We could tell from the character of the gas that was coming out. We opened the plug, when we shut the valves off, and noticed the character of the gas, and smelled of it, and tasted of it, and noticed the speed of the flow, etc.

Q. Could you taste it?

A. I couldn't taste it very much. It has a sweetish taste.

Q. Sweet? Something that would make the bread sweeter, would you say? A. It is a sweet taste; yes.

Q. Now, could you smell it good?

A. Yes, sir. I could smell it very distinctly.

Q. You could tell the amperage by the smell, and taste, and whether the agitator was shut off, or whether it wasn't?

A. There was no man left down there. We took all the men with us from the machine. We assured ourselves it was running, you understand.

2421 Q. Were you afraid they would change it?

A. We thought it was best to take them along.

Q. So they couldn't monkey around it while you were taking the gas? A. We hardly thought they would.

Q. Now, did Mitchell turn the valve that these men use, so the gas would not be too dilute?

A. Mitchell didn't have anything to do with it, I presume.

Q. What was he out there for? A. I don't know.

Q. He hired you to go out, and took you out, didn't he?

A. I don't know. Mr. Elliott asked me.

Q. He employed you, didn't he? You were in his employ in this matter, weren't you?

A. Mr. Elliott asked me to go out.

Q. Wasn't Mr. Mitchell the man who was directing you?

A. He went out to introduce us to the Rex mill owner, I understood.

Q. And you wanted to see that he didn't make the gas dilute, did you?

A. I was told to get some of that gas under the same conditions the other gentlemen got the gas, and I did so, to the best of my ability.

Redirect Examination

By Mr. Elliott:

Q. I will ask you if, as a matter of fact, in your judgment, you did take the air out of this flask? A. I did.

Q. And do you know if the second miller was in attendance there, the man who testified in this case?

A. There was a miller there in attendance.

Q. Did he say he was present when the Government men were there?

Objected to as hearsay.

Q. Did you ask him to shut off these agitators, so that you could get the gas in the same condition as when it was

2422 gotten by the Government men? A. Yes, sir.

Recross Examination

By Mr. Butler:

Q. Did you start this thing up when you went out there, or was it going when you got there?

A. It wasn't going, but we started it.

Q. How long were you out there?

A. I presume a couple of hours.

Q. How long was it going when you took the gas?

A. We let it run, I think, for about 20 minutes.

Q. So you started this up to make this gas?

A. They weren't running, and we had to start it up to get the gas.

Q. How big is the tank—the mid-way tank.

A. I presume it was about 5 or 6 feet high, by about 14 inches.

Q. How many minutes would it take to fill the tank full of gas, after you started?

A. At the rate of speed that was flowing, it wouldn't be over three or four minutes, because it was flowing at a rapid speed.

Q. You don't think it would dilute it, at all, with the dead air in the tank? You think it would come so strong through there that it would fill the tank full of the gas of the full weight and density of this gas in three or four minutes, do you?

A. Yes. It was an inch and a half pipe.

Redirect Examination

By Mr. Elliott:

Q. Mr. Butler asked you something about breathing the gas.

A. We smelled that, there, and breathed of it, there, during the time we were making the experiment, or gathering it.

Recross Examination

2423 By Mr. Butler:

Q. While it was going into the bottle?

A. Well, before. We opened this inch and half plug, and let it blow out of there for a good while, because it was desirable to get it all out of the apparatus, free of mixtures, before taking that off, so we assured ourselves as to the speed of the flow, and all these things, before we drew this off.

Q. Was it bleaching at the time? A. No, sir.

Q. It wasn't bleaching flour when you took this?

A. It was still, as I say. They were not running when we got there.

Q. I mean, when you took the gas, were they bleaching flour? A. No.

Q. It was running through the agitator empty, was it?

A. It didn't go through the agitator, as I said. We cut the agitators all off.

Q. You shut off all the agitators? A. Yes.

Q. So, you were pumping the full capacity of the machine, right into the bottle? A. No, sir.

Q. That is the only place it could escape?

A. It must have been backing against that plug.

Q. It wasn't bleaching flour, at all, and couldn't get into the agitators? How long did you pump it into the bottle?

A. Just a short time. Long enough to fill the bottle.

Q. And how long would that be, in your judgment?

A. It wasn't long.

Q. How long was that bottle connected up with that pipe, in seconds, or minutes?

A. I couldn't say, but I don't think it was over two minutes; probably less.

Q. So, then, you put into that bottle the full capacity of this machine for two minutes?

A. Oh, not the full capacity of the machine. It couldn't have got into that bottle.

Q. Where else could it go?

A. The gas had to get out some place else.

2424 Q. Where did it get out?

A. These plungers, probably around the piston. I don't know where it got out.

Q. What piston? The pump?

A. They had some kind of a pump.

Q. So you think it was [you think it was] going back through the piston of the pump, like a churn? A. Probably.

Q. I understand you shut off all the agitators, carefully?

A. Watched the man who shut them off.

Q. And you saw him do it?

A. Just as it was before.

Q. And you saw him shut off the agitators, didn't you?

A. Well, he shut off the valves that lead to the agitators.

Q. You saw him shut off all the agitators, didn't you?

A. I saw they were shut right.

Q. And the only escape of the gas was by going back over the piston?

A. I would not be sure about that.

By Mr. Elliott:

Q. I just want to ask you about the voltage on that?

A. About 110 voltage, I should judge.

Witness excused.

Thereupon Court adjourned to meet again at 9:30 o'clock a. m., Friday, July 1, 1910.

2425

Morning Session.

Kansas City, Missouri, Friday, July 1, 1910.

Court met pursuant to adjournment and the further hearing of this cause was resumed as follows, to-wit:

Dr. Walter M. Cross, recalled for further examination testified as follows:

The Witness: Before going on, I would like to make a correction of some testimony that I gave yesterday.

The Court: Very well, doctor.

The Witness: And that was in the Rex mill with regard to what I took to be a motor was in fact a generator, and what I took to be a counter-shaft was in fact a shaft that was running through the wall and was running the generator, and while the house current was 110 volts as I say and ascertained the output of this, there was no volt motor on this generator.

By Mr. Butler:

Q. Who told you all this?

A. I ascertained it myself.

Q. When did you find it out? A. This morning.

Q. Oh, you went out.

A. But I wanted to make sure about that.

Q. Did you find this all out by hearsay this morning?

A. No, by personal visit.

2426 Q. Oh, you went out this morning. Do I understand you to say that the gas which is in this bottle which is marked "280" was of the concentration made by that machine and it was flowing through the pipes?

A. If you understand that, that is not correct.

Q. You didn't know that you were taking gas for the purpose of getting it in the same concentration that it ran through the pipes at all, did you?

A. No, sir, I didn't know or I should have been more careful, yes sir.

Q. And you know as a matter of fact that the gas which you put in the bottle was not the same concentration that went through the pipes?

A. Not quite the same concentration.

Q. You supposed they just wanted some gas for experimental purposes?

A. I was not informed at the time it was to be made for a comparison, Mr. Butler.

Q. You was not informed at all that it was for the purpose of showing the concentration of the gas?

A. No, sir, I didn't know at that time.

Q. And didn't take any pains at all to have the same concentration, did you? A. Not on that experiment, sir.

Cross-Examination

By Judge Scarritt:

Q. Now since you found out what was required have you taken a sample of the gas with the view of ascertaining whether it has any color or not?

Mr. Butler: We object to that.

The Court: Well, he may answer.

A. I have.

Q. Have you that gas with you? A. Yes, sir.

2427 Q. Let me see it. Now since you ascertained, I understand at the time you took this gas you didn't know it was to be used for the purpose of attempting to show the color of the gas?

A. Not for comparison, I didn't know it or I should have been more careful, sir.

Q. You didn't know that at that time? A. No, sir.

Q. Dr. Keyser who was with you did, didn't he?

Mr. Butler: I object to what Dr. Keyser knew.

The Court: Yes.

Judge Scarritt: I withdraw it.

Mr. Butler: I object to this kind of examination—a mere play—

The Court: Now, gentlemen, of course, I recollect distinctly and well what occurred yesterday morning, and it was agreed by counsel, with my approval, that Dr. Cross should be called with reference to one exhibit.

Judge Scarritt: Yes.

The Court: Now let's confine ourselves to that.

Judge Scarritt: We made a mistake in the exhibit, that is all.

Mr. Butler: But this exhibit was prepared since he was on yesterday; how can they be mistaken in the exhibit, and the exhibit that they produced yesterday he had in his possession.

The Court: Now we must confine ourselves to this one exhibit, otherwise there will be no end to this case.

Judge Scarritt: Let see—

The Court: Because—just a moment, Judge Scarritt, if we are going back into these mill propositions, you will have to send for men, and they will have the privilege accorded them.

Judge Scarritt: We are perfectly willing to let the jury go and see it themselves.

2428 The Court: Judge Scarritt, no use of saying as has frequently been said, for the jury to go and see it for most obvious reasons to me as a lawyer, for the reason that it can not be made of record; there is no statutory authority therefor either federal or state that I know anything about.

There is nothing for the jury to see if they go there other than what has been described here twenty-five or fifty times, and it will not do for you to say that I am keeping out any evidence, or anything that would enlighten the jury; it would not enlighten the jury, and it could not be made of record if I did allow them to go.

Judge Scarritt: We object and except to the remarks of the court.

Judge Scarritt: Now, if your Honor please, we offer to substitute the bottle of gas which I now hold in my hand, and which I will have marked as an exhibit (which was accordingly marked "Exhibit 281") for the exhibit 280 which was introduced yesterday, for the reason that the latter exhibit has been taken by the witness with the view of obtaining a complete sample of the gas with a complete vacuum made in the bottle by draining it at least 200 times.

The Court: The Court on its own motion by reason of what has heretofore occurred and by reason of what occurred yesterday morning before the jury and reporter were in attendance, which will be made of record later on if it should become necessary or desirable, the exhibit is excluded.

Judge Scarritt: I would like further to say, if your Honor please, that the exhibit No. 280 which we offered yesterday was made by mistake and it was intended to offer the Exhibit 281, or have and offer the 281.

2429 The Court: The court knows, if that is a motion, it ought to have been corrected heretofore, and by reason of what I have heretofore already said, the court of its own motion excludes it. There will be a record accordingly made if it should become desirable or necessary.

Judge Scarritt: Yes, sir. In order to identify this Exhibit 281 I would like to have the witness state how he obtained it.

The Court: Now anything further with this witness?

Judge Scarritt: I make that offer.

The Court: You are excused, Dr. Cross. Call a witness for defendant.

Counsel for claimant except to the ruling and remarks of the court.

Dr. E. R. Lecount, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

By the Court:

Q. Where do you reside? A. Chicago.

Q. E. R. Lecount, Chicago, Illinois.

By Mr. Elliott:

Q. What position do you occupy, Dr. Lecount?

A. I am professor of pathology in Rush Medical College.

Q. With what hospitals, if any, are you connected?

A. I am connected with the Presbyterian Hospital of Chicago, the St. Luke's Hospital, Chicago, the Cook County Hospital of the same place, as pathologist to all of these institutions.

Q. Where did you obtain your medical degree?

A. At Rush Medical College.

2430 Q. Have you pursued post graduate studies and if so where?

A. I have in both this country and in Europe. In this country at John Hopkins Hospital; in Europe in the Pasteur Institute in France, and in the University of Berlin, Germany.

Q. Prof. Haines testified yesterday to having turned over to you the organs of some animals for examination. Do you recall that fact? A. Yes, sir.

Q. What animals were they, Dr. Lecount?

A. They were six guinea pigs and six white rats, half of each group being used or were used as controlled animals and half for experimental tests animals so-called.

Q. What did you examine these animals for?

Mr. Butler: I object to that as irrelevant and immaterial to any issue on trial in this lawsuit.

The Court: He may answer.

A. I first examined those animals for any evidence of a methemoglobinemia.

Q. What did you do?

A. I examined the spleens for the presence of pigment which results from the destruction of the blood when methemoglobinemia is present.

Q. What is methemoglobinemia?

A. It is the occurrence of a change of the hemoglobin, and its oxygen carrying power, as I understand it when hemoglobin that is present in the red corpuscles of the blood whereby its oxygen carrying power is limited. The chemistry of the process I do not understand.

Q. What did you find as a result of your examination?

Mr. Butler: Object to as irrelevant and immaterial.

The Court: He may answer.

A. I found no evidence of a destruction of the blood.

The Court: He asked what you did find not what you didn't.

A. I will so answer. I found the spleens of the guinea pigs were used as test animals were practically the same
2431 or absolutely the same so far as I could distinguish.

Mr. Butler: I move to strike out the answer as not responsive and immaterial and irrelevant.

The Court: That answer is stricken out. The question is what you found.

Mr. Elliott: I withdraw the question.

Q. I will ask you as a result of your examination if you found methemoglobinemia in the spleens of these animals?

A. I found no evidences of any chronic poisoning.

Mr. Butler: I move to strike out the answer as not responsive to the question.

The Court: The motion is sustained.

To which ruling of the court claimant then and there duly excepted.

Q. Did you find in the spleens of these animals any evidences of chronic methemoglobinemia? A. I did not.

Q. Why did you examine the spleen Dr. Lecount?

Objected to as immaterial and irrelevant.

The Court: He may answer.

A. Because in any long standing destruction of the blood there is a pigment deposited in the spleen in considerable amounts.

Q. Is that in your judgment a test for determining this fact you testify to? A. It is.

Q. What relation in this connection has the spleen of these animals to the spleen of a human being?

Objected to as irrelevant and immaterial.

The Court: He may answer.

A. All these processes are the same in all warm blooded animals.

By Judge Scarritt:

Q. How is that?

A. These processes are the same in all warm blooded animals.

Mr. Butler: I understood the question not to ask about processes but the function of the spleen as compared with a human being.

(Question and answer read by the reporter).

2432 The Court: Well, it may stand. Go on.

By Mr. Elliott:

Q. In all your experience have you ever had any observation or heard or read of it, a case of a human being having chronic nitrite poisoning?

Counsel for libelant objects to the question as irrelevant and immaterial.

The Court: Chronic.

Mr. Elliott: Chronic nitrite poisoning..

The Court: Well, he may answer.

A. I have not.

Q. How many human spleens have you examined in the last six years?

Objected to as irrelevant and immaterial, and no foundation laid.

The Court: He may answer.

A. Approximately a thousand.

Q. Where? A. In Chicago.

Q. How many in your entire professional experience?

A. Several thousand.

Q. With what result as to chronic methemoglobinemia?

Objected to as immaterial and irrelevant.

A. I don't know of any.

The Court: You may answer.

A. I don't know of any chronic methemoglobinemia that occurs in an adult in the human.

By Judge Scarritt:

Q. What is that?

A. I do not know of any chronic methemoglobinemia that occurs in the human.

Judge Scarritt: Did you ever find it?

The Court: I thought—what did you say about an adult?

A. Most of my work—

By the Court:

Q. I understood you to say something about an adult, was I mistaken?

(Answer read by the reporter).

2433 A. Yes, or in any human adult or infant, your Honor.

By the Court:

Q. Well, I simply asked you what you said. A. Yes.

By Mr. Elliott:

Q. Well, my question had reference to the fact if you ever in all these post mortem examinations seen a case of chronic methemoglobinemia, that was the question. A. I have not.

The Court: Let me ask you, could there be such a thing as chronic methemoglobinemia.

Judge Scarritt: I call your attention to the fact that it is based on the testimony of the Government's witness who said that.

The Court: I have to deny myself this great pleasure again of listening to argument. I am simply asking him whether there be such a thing as chronic methemoglobinemia.

Mr. Butler: You don't understand this at all.

Judge Scarritt: I understand I don't understand it at all.

The Court: Well, go on, I am not a scientist and I could not conceive of such a thing, but may be I am mistaken.

Witness: It is conceivable, your Honor.

By the Court:

Q. Conceivable—does it occur? A. Not to my knowledge.

Mr. Elliott: That is all.

The Court: So you as a scientist and I as a layman agree then.

Cross-Examination

By Mr. Butler:

Q. Have you ever seen methemoglobinemia in a human being or an animal in your life? A. How?

2434 Q. How is that? A. How?

Q. With your eyes, I suppose, you would use your spectroscope?

A. I have seen it with the spectroscope, yes, sir.

Q. In a human being? A. In the blood.

Q. In the human living being.

Judge Scarritt: You mean chronis or acute?

Mr. Butler: I will tell him what I mean before I get through with him.

A. I do not recall how, just that it was from a human being.

Q. What was from a human being? A. The blood.

Q. A living human being? A. Yes, sir.

Q. What? A. Yes, sir.

Q. When? A. Within the last three years perhaps.

Q. Where? A. At Rush Medical College.

Q. What gave it to him?

A. It was a case of chronic acetanilid poisoning.

Q. Is that methemoglobinemia?

A. It was a case of acetanilid poisoning.

Q. I know what you said, it was a case of poisoning by acetanilid. Is that the same methemoglobin as is produced in blood by nitrites? A. I suppose it is.

Q. Is there any difference between the change of the blood by carbon monoxid acetanilid and nitrites?

A. Not to my knowledge.

Q. You think it is all the same you think if you are asphyxiated by gas it is the same as if the blood was robbed by nitrites in your food, do you? A. No, I do not.

Q. Do they have the same effect asphyxiation by gas, which is the carbon monoxid hemoglobin, is that the same as the methemoglobin of the nitrites or the acetanilid or is it different?

A. The methemoglobin that occurs in the blood from different methemoglobin poisons, I believe is the same in all instances as far as I know.

Q. The nitrite hemoglobin, carbon monoxid methemoglobin and the acetanilid methemoglobin?

[—] I couldn't say.

Q. Will you say that they are the same or different or that you don't know?

A. That is my impression but I am not a chemist.

Q. That requires chemistry, does it? A. It does.

Q. Did you ever find any chronic methemoglobinemia in the spleen of anything, animal, man?

A. I have never seen in the spleen of animal or man the results of the chronic methemoglobinemia.

Q. And why do you expect to find it in the rats; did you examine the rats?

A. I examined the rats with no expectation of one thing or another.

Q. Why did you examine them you knew in all your experience as a man you knew that that could not be, didn't you; you knew it was physically impossible to find any methemoglobin in the spleen of a rat?

moglobinemia as a chronic methemoglobinemia in the spleen of the rat or guinea pig or anything like that? A. No, sir.

Q. You thought that it was possible by nitrites?

A. I did not speculate as to the possibility or impossibility, no, sir.

Q. And you examined a thousand spleens of human beings to see if there was any chronic methemoglobinemia from nitrites? A. Never, no, sir.

Q. You did not examine for chronic methemoglobinemia at all, did you?

A. I have examined the spleens of thousands of human beings.

Q. For chronic methemoglobinemia?

A. For extensive pigment deposits as well as for other changes.

Mr. Butler: I move to strike that out.

The Court: It will be stricken out as not responsive.

Q. Not talking about pigment deposits; I am talking about chronic methemoglobinemia coming from nitrites, how many spleens of human beings have you examined for that thing?

A. Why I have examined thousands of spleens for that, results of that condition, yes.

2436 Q. Never found any?

A. Never found any indication.

Q. Never heard of anyone that did?

A. Not of the chronic methemoglobinemia, no, sir.

Q. So in all your reading and learning and experience in life you never found or heard of chronic methemoglobinemia in the spleen or evidence in the spleen, did you? A. No, sir.

Q. Did you ever examine the hair for it? A. No, sir.

Q. Or the whiskers? A. No, sir.

Q. Never heard of anybody finding it in the hair or whiskers, did you? A. No, sir.

Q. And yet never having heard of it being found in the spleen, never having heard of it being found in the whiskers, you examined the spleen and did not the whiskers?

A. That is it.

Q. That is strictly scientific, I suppose?

A. No I don't think it is.

Q. Did you use the spectroscope? A. No, sir.

By the Court:

Q. Sir? A. No, sir.

Q. Did you use a microscope? A. Yes, sir.

Q. Used it carefully on the guinea pigs?

A. Yes, sir.

Q. Looking for this thing that you never heard to be in the spleen of anything. Did you know that this experimentation was for the purpose of proof in this case to show that it was a good thing to eat flour with nitrites in it, because the guinea pigs didn't have methemoglobinemia in the spleen when no guinea pig ever had it, or no human being ever had it?

A. What is the question?

Q. Did you know that the examination of these spleens in the rats and the guinea pigs was for the purpose of proof in this case that it was a good thing to put nitrites in flour?

A. No, I didn't have that definite purpose in mind in examining these spleens.

The Court: Doctor, you will fall if you don't look out.

A. Thank you. I examined these spleens for evidence 2437 of blood destruction.

Q. Well, you knew these experiments were being made under somebody's direction for the purpose of proof in this law suit or some bleach-flour law suit?

A. Yes, sir, yes, sir, I knew that.

Q. So that and you knew it was claimed by the men who bleached the flour that it was a good thing to put nitrites in the flour you knew what was the claim?

A. I knew that there was an issue over the bleaching of flour, that is as far as I knew about it.

Q. The presence of nitrites in the flour resulting from bleaching, that is what you knew?

A. I knew that the question of nitrites was an issue, yes, sir.

Q. Now, then so as furnishing light on that question you took three spleens of three rats and three spleens of three guinea pigs and examined them under the microscope for something that you had never heard in all your life or experience as having occurred in the spleen of any guinea pig or rat or other animal.

A. No, I didn't understand it that way, Mr. Butler.

Q. Did you ever find chronic methemoglobinemia in the spleen of any guinea pig or rat or human being or hear of it there resulting from nitrites?

A. The question, as I stated before, is a little difficult to answer, I would like to state—

The Court: I can't help it.

A. I would like to state why.

Q. Did you ever find or hear of methemoglobinemia in the spleen of a guinea pig resulting from nitrites?

A. Can you ask the question the results of methemoglobinemia?

A. No. I ask if you ever found chronic methemoglobinemia or the evidence of it or the results of it in the guinea pig from nitrites? A. No, sir.

Q. In the rat? A. No, sir.

Q. In a human being? A. No, sir.

Q. In any animal? A. No, sir.

2438 Q. Did you ever hear of anybody who had?

A. Not of the chronic condition.

A. No, sir. Did you ever hear of anybody who ever claimed that chronic nitrite poisoning would manifest itself in the spleens of anything that has a spleen? A. Yes, sir.

Q. When?

A. Oh, there is plenty of evidence for that.

Q. Chronic nitrite methemoglobinemia in the spleen, haven't you just told me that there was not, never heard of any such thing? A. The evidence—

Q. I say nitrites, I am talking about nitrites?

A. Yes, sir.

Judge Scarritt: Didn't say that before.

A. There is plenty of evidence, it is a well known fact that when the blood is destroyed the pigment is deposited in the spleen, no matter what the reason for the blood destruction is.

Q. Let me see, then I have misunderstood you all along?

A. Yes.

Q. Then chronic poisoning by nitrites does show evidence in the spleen? A. It should.

Q. It does, does it; did you ever see a case?

A. No, sir, not from chronic nitrite poisoning.

Q. Did you ever hear of a case? A. No, sir.

Q. No, did you ever in a human being or an animal?

A. Not in the chronic condition.

Q. That is it, isn't it?

A. Not in a chronic condition.

Q. That is what I say, in a chronic condition, so that never having heard of it, never having seen it, in order to determine whether or not nitrites are good in bread, you took three rats, the spleens of three rats and the spleens of three guinea pigs and examined for something you never found anywhere in the world or heard of having been found?

A. I examined for other evidences of blood destruction.

2439 Q. No, you examined it for chronic nitrite hemoglobinemia poisoning or the evidences of it, didn't you?

A. Yes, sir.

Q. Now, then is the blood of a rat the same as that of a man? A. It is in these respects.

Q. Is it the same or different, as a scientist, if there was blood on a hammer, and the question as whether the hammer

had hit the man on the head and killed him and if that was the man's blood, or whether it hit a rat and killed it, could you as a scientist find out by analyzing the blood?

A. There are certain measurements.

By the Court:

Q. The question is, can you tell the difference between the blood of a rat and a human being.

Q. I am not asking him the details, can you tell the difference, are they the same or are they different?

A. They are not alike in some respects, in other respects they are.

Q. You can distinguish human blood from the blood of any other living thing, can't you?

A. A young dog is very similar to a human being in some respects.

Q. Can't you distinguish between the human blood and the blood of any other living thing?

A. I don't know of anything that approaches a similarity as well as a young dog, a puppy.

Q. Now, with respect to the law, Dr. Haines told us when you are taking things all the time and all the time then the thing ceased to be harmful. Now I want to find out the life of the [rate] examined they live on the offal and sewers, do they not, and in the filthy places and are the scavengers, are scavengers, are they not? A. I believe so.

Q. You know they are, don't you, rats?

A. Oh, I have the general impression that we all have about rats.

Q. You don't think their method of life, or their food, or their diet, or their air, or their blood is in any way comparable to that of a human being? A. Oh, yes, I do.

Q. So then after looking at the spleen of a rat, and found that it was not poisoned by nitrites when you was giving nitrite of sodium, that that will justify putting nitrites in bread?

Counsel for claimant objected to the question as calling for an improper conclusion.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. Yes, I answer that.

Q. All right, so that to get your position as a pathologist and scientist, doctor, if you give a rat some nitrites, then give it some more and keep on for a long time, then you examine his spleen and you find that he was suffering from chronic nitrite

methemoglobinemia, then you say that it is right to put nitrites in bread?

Same objection.

Q. From that experiment alone, do you, that is true, isn't it, is it?

A. No, providing certain other conditions were fulfilled, yes.

Q. That is that proof, the examining of the spleen for chronic methemoglobinemia by nitrites in the rat, you never having found it there, nobody else ever having found it there, is good proof why we should put nitrites in baby food?

Same objection.

The Court: He may answer.

Q. What? A. If the conditions were the same, yes, sir.

Q. If the baby was a rat, is that what you mean, if conditions be the same? A. If you wish it so, yes.

Q. Now the baby is not, we will not make that assumption, we just take the baby in the ordinary life, does the experiment which you made on the spleen of these rats have any tendency whatever to justify the proposition that it is right to put nitrites in baby food?

2441 Same objection.

A. In what amount?

The Court: He may answer.

Q. In any amount? A. Yes.

Q. Yes, so that as a scientist you say if you don't find the thing that never existed anywhere, anything anywhere, that is the evidence of chronic nitric methemoglobinemia in the spleen in the rat, that then having tried it that way on the rats, you are willing to put the nitrites in my baby food or your baby's food?

A. If there was anything to be accomplished by it, yes, sir.

Q. What do you mean if there was anything to be accomplished by it, to sell flour?

A. If there was any necessity for doing it.

Q. You think if it made it easier to sell flour, that would be a sufficient reason?

A. I am not saying what the reason should be.

Q. If you wanted the nitrites in the baby food for medicine, is that what you mean?

A. If there was any reason for putting in the small amounts I would not consider it as harmful.

Q. Because of this experiment? A. Yes, sir.

Q. Under this experiment?

A. These experiments and facts that I know.

Q. No, I am speaking of these experiments that you made to justify it? A. Yes, sir, these experiments.

Q. All right, all right, I see you are a scientist all right. Are you able to distinguish between the human blood absolutely from the blood of other animals?

A. It is possible to distinguish human red corpuscles from the red corpuscles of most other animals.

Q. How? A. By measurements.

Q. Made by measurements. Give us the detail of that. Here I have a spatter of dog's blood there, and of human blood over here. Now I want to measure, how am I going to do it?

A. Measurements are made with a scale used underneath a microscope.

2442 Q. What is the method of measurements; I would not know how to go about it.

A. You use the microscope and you have a little scale put underneath the microscope.

Q. Then what?

A. And the red corpuscles are put over this particular scale and as the diameter is measured the red corpuscles are observed.

Q. Well, then we measure the diameters and then?

A. There are differences in the size.

By the Court:

Q. Sir? A. There are differences in the sizes.

Q. I know, what differences and which way?

A. Well, the human red corpuscles has a definite known diameter.

Q. What is it?

A. It is about 7 plus myria-millimeters, thousandths of a millimeter.

Q. What is it of a young dog?

A. A young dog is very nearly the same.

Q. What is it?

A. I could not answer offhand; these things are laid down in tables that are referred to, they are well known and generally accepted measurements.

Q. Is that the only way of finding out, taking a microscope and a rule? A. No, there are other methods.

Q. What other methods?

A. They are methods that depend upon the use of laboratory animals.

Q. Well, I know, but give us the test; isn't there some test?

A. The test is to inject a laboratory animal with human blood.

Q. Yes.

A. And in the laboratory animal there is an indicator for the presence of human blood.

Q. What is an indicator?

A. An indicator is known as an anti-body we don't know what it is.

Q. Then what?

By the Court:

Q. You don't know?

A. We know what it is, we know that there is a reaction perhaps.

Q. What kind of a reaction? A. A precipitate.

2443 Q. Makes the blood solid?

A. No, sir, a precipitate.

Q. Well, if you introduce the human blood into the blood of a lower animal, what effect has it, does it make him feel better or feel worse?

A. Human blood into the body of a lower animal?

Q. Yes.

A. It will have a tendency of dissolve the blood of the lower animal.

Q. Dissolve it? A. Yes, sir.

Q. Well, then the constituents must be somewhat different?

A. They are.

Q. Well, it is something different than the mere atom of the red corpuscle, then, isn't it? A. Yes, sir.

Q. Different kind of blood? A. Yes, sir.

Q. Let me see about this, we call this a red corpuscle of a human being, is a little bit larger (illustrating on blackboard) and that of a dog, very roughly. Now that is not the only difference, is it, because when you put the blood of a human being into the dog's veins that makes him sick, doesn't it?

A. Well, it would produce certain symptoms.

Q. What symptoms would it produce?

A. Well, there is a solution to some extent of the red corpuscles of the injected animal.

Q. There is a solution of the red corpuscles, so then the human blood dissolves the red corpuscles of the blood of the lower animals, will in the blood stream of the lower animals?

A. In the lower animals there is some so-called solution of the blood.

Q. Now, if you put the blood of a lower animal into the blood of a human being is that blood strong enough to withstand the attack of the lower animal?

A. Yes, there is some change.

Q. Then it is demonstrated without going into the details that the bloods are chemically different?

A. These differences are in the fluid parts of the blood largely.

Q. Well, it is demonstrated that the blood, speaking of it as a single fluid, the fluids are different?

A. In some respects, yes, sir.

2444 Q. Chemically how much human being blood would it take if injected into the circulation of a dog to kill a dog?

A. I don't know.

Q. About how much, will any quantity kill him, make him so that he will die? A. It is my impression, yes, sir.

Q. How much? A. I couldn't say.

Q. A spoonful? A. Oh, no, more than that.

Q. It would take more than that? A. Yes, sir.

Q. How much would it take to kill a guinea pig?

A. Human blood injected how?

Q. I don't care how, in any way, the best way to kill him?

A. The best way to kill him would be to put it in the veins or arteries of the blood of this animal.

Q. Now how much of the human blood will it take to kill the guinea pig?

A. I couldn't say, perhaps two or three ounces.

Q. Two or three ounces, now doctor—

A. Approximately, guess work on my part.

Q. Is methemoglobin in blood a bad thing or a good thing?

A. A bad thing.

Q. Will nitrites produce it?

A. To the best of my belief I know it will.

Q. You are sure of it? A. Yes, sir.

Q. That is one of the certain definite well known facts of science isn't it? A. Yes, sir.

Q. The action is chemical, isn't it, without going into the detailed reaction, but the action is a chemical action, isn't it?

A. It is my impression that that is the belief.

Q. Now then you have studied chemistry to some extent?

A. Yes, sir.

Q. While you are not familiar, you know that chemical laws act with certainty and exactness under the same conditions? A. That is my general impression.

Q. What is that? A. That is my general impression.

Q. You know that, don't you?

A. I don't wish to qualify, Mr. Butler, as a chemist.

2445 Q. No, I understand, but you know that the laws of chemistry are as certain as the law of gravity, don't you?

A. So far as they are understood.

Q. And you know, do you not, that nitrites added to food will produce methemoglobin in the blood?

A. In certain amounts.

Q. Yes, sir, and you know that nitrites—do you know the kind of nitrites in this bread from bleached flour?

A. No, sir.

Q. You don't know about that, but speaking of nitrites generally, it will do it, all nitrites will do it?

A. Nitrite poisoning is said to be associated with methemoglobinemia. That is an answer to your question, is it not.

Q. No, no, I am speaking of poisoning the people.

A. Any degree of poisoning.

Q. Yes, sir, and there is poisoning whenever methemoglobin takes place?

A. That would be a harmful effect, yes, sir.

Q. And if it only takes place to the effect of the amount of one single molecule of nitrite in the blood, it is harmful to that extent? A. If you could so conceive of it.

Q. Yes, sir, yes, sir, and the degree of harmfulness bears upon the amount produced, does it not?

A. I don't think I can answer yes to that statement.

Q. Well, I say if you produce a little methemoglobin, and change it from hemoglobin to methemoglobin by nitrites in food? A. Yes.

Q. The injury would be less than if you produce more, is what I am getting at?

A. Unless you wish to invade tolerants in the formula.

Q. Well, I know.

By the Court:

Q. What? A. Tolerants.

By Mr. Butler:

Q. But now leaving out of consideration the question of tolerants for the purposes of this answer, I will take that up later if you desire it, now independent of getting the 2446 nitrite habit, so to speak, which would cover roughly your tolerants, now say that if we take enough nitrite in our bread to produce a little methemoglobin, there would be slight injury; if we increase the nitrites in our bread and produce more methemoglobin, there will be more injury?

A. Yes, sir.

Q. And the amount of injury produced will be in a way, or at least respect the blood, as respects the methemoglobin, I will put it, the oxygen carrying power of the blood being measured by the amount of methemoglobin produced?

A. To some extent, yes, sir, not altogether, perhaps.

Q. Well, if you produce one per cent methemoglobin, that is half as bad as two, two-thirds as bad as three, and so on, roughly speaking?

A. Roughly speaking, the greater the methemoglobin the greater the harm.

Q. The oxygen carrying power of blood is the most important function of the blood, is it not?

A. I think it would be so.

Q. Now, these nitrites also produce blood pressure, do they not? A. Yes, sir.

Q. And that depends upon the amount, does it not?

A. Yes, sir.

Q. And frequently of the dose? A. Yes, sir.

Q. Reduction of blood is a bad thing for health, isn't it?

A. No,—

Q. What is that? A. No, I would not—

Q. Standing alone it might be a good thing in sickness; angina pectoris you have to give nitrite to keep them from dying from that?

A. Under certain conditions it is very desirable to reduce blood pressure.

Q. I mean taking a person in health, in normal health, the plugging in of nitrites with the food and depressing blood pressure constantly, would tend, I will put it, would be unfavorable to health?

A. If the nitrites were in quantities sufficient, it would do that, yes, sir.

2447 Q. I am speaking now of enough to appreciably depress blood pressure? A. Yes, sir.

Q. And further nitrites invade—attend the irritation of the digestive tract, do they not? A. I do not know.

Q. Well, isn't it—do you practice medicine?

A. No, sir.

Q. Has it come under your observation that giving—take a case of angina pectoris, or something like that, I understand that they have to give nitrites to keep them from suffering; is that within your knowledge? A. Yes, sir.

Q. And do you not kind a gastric disturbance resulting from the nitrites being fed into the patient all the time?

A. No, I don't know that, Mr. Butler.

Q. But you do find a cyanosis, do you not, if it is carried on far enough? A. Yes, sir.

Q. Now, we will take for example, a patient with a heart that is very painful at times, his heart disease is called angina pectoris, I don't know what the phrase means, do you, Doctor; tell us just what that means in English, can you; pectoria means of or relating to the heart, I suppose, now, what does angina mean—pain?

A. Pain, a suffocation.

Q. Pain suffocation at the heart?

A. Feeling of suffocation.

Q. Now to remove that nitrites are given? A. Yes, sir.

Q. And also they have to administer several times a day in appropriate doses? A. Yes, sir.

Q. And that relieves the blood pressure and the suffering, doesn't it, tends to?

A. Yes, sir, is supposed to act in that way.

Q. Now, after you treated a patient that way for a while, you will find cyanosis, won't you? A. I don't know that.

Q. Don't know that it will keep changing the blood, and so on, and the patient will take on the appearance of the person that has been partially asphyxiated by gas?

A. No, I have no knowledge of cyanosis being produced
2448 by medicinal doses or nitrites administered for the purpose as you have described, I haven't any knowledge of it.

Q. Have you any knowledge to the contrary? A. No, sir.

Q. Very good, then you don't know about it, and do you not know of reported cases? A. No, sir.

Q. Of that very thing?

A. Not through the therapeutic administration of nitrites as you have described to me.

Q. Now, Doctor, I am not quite satisfied that you want your testimony to stand as it is left, I cannot believe that you want it to stand as I understood it with reference to the significance of this rat experiment? A. Would you like me to explain it?

Q. I will ask you this, I want you to make it clear?

A. Yes, sir.

Q. And in a certain respect, now, the rub in this case is whether it is a good thing to put nitrites in flour to make bread out of it, that is the issue we are trying here. Now, in order to shed light upon that issue you did a certain detail of work, to-wit, you examined the spleens of three animals, three rats, three animals?

A. And three guinea pigs.

Q. And you looked there for chronic nitrite methemoglobinemia? A. For the results of such a condition.

Q. For the evidence of it?

A. Pigment deposits, yes, sir.

Q. And you found none? A. I found none.

Q. Now, we'll say that your methods were good, and there none there, for the purpose of my point.

A. Any that would indicate blood destruction as a diseased condition.

Q. All right, we'll assume that that is true. A. Yes.

Q. Now, then, as to the effect of that experiment. Now, you told us that you never heard of any such thing existing in man or animal?

A. The laws are very well understood, generally known, if you wish my position clearly I can give it to you.

Q. But you told us that you never heard of any such thing in man or animal?

A. I did not make the statement in the way in which you represented it.

2449 Q. Very well. Did you ever hear of chronic nitrite poisoning in man or animal?

A. No, I don't know of such a condition existing.

Q. Very good. Now then, was it not, as I understood Mr. Elliott, the sole purpose of asking you there to show that the spleens of these pigs and rats did not show any chronic nitrite poisoning? A. That is correct.

Q. Now, it is your position that there never was any chronic nitrate poisoning of man or beast?

A. I do not know of any evidence that I have ever seen or heard of that condition.

Q. Very good. Let us assume that that is true. Then will you say that that experiment justifies the putting of nitrites in food for babies?

Counsel for claimant objected to the question as calling for an improper conclusion of the witness.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. Now, that is the point, it is the inference; it is not your work, or anything, but the inference. I want you now, because I don't think you want to leave the jury with the impression that you think that the examination of those spleens, that is, these spleens of lower animals, tends in any degree to justify the putting of nitrites in food; now, do you think so, that alone, now?

Same objection by claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. What is the reason for putting nitrites in food?

Q. To sell the food, I think, and to cheat people who buy it, that is what I think.

Judge Scarritt: We object to that and ask to have it stricken out.

2450 Mr. Butler: All right, strike it out.

The Court: That will be stricken out.

By Mr. Butler:

Q. But that is what I think.

A. If that is the only reason I would not think that my work would be an argument for the putting of nitrites in food.

Q. No, none at all, none whatever? A. No, sir.

Q. Nor it would not be any evidence that nitrites might not injure health; you don't have to have chronic poisoning in order to injure health, do you? A. No, you can have acute poisoning.

Q. And you can injure health without having poisoning at all, can't you, by foods, I mean by adulterated foods?

A. By perfect health of the individual—

Q. No, no, don't let's get off on any definition, I mean now as people speak of taking— A. Yes.

Q. Poisons, of taking poison. A. I understand.

Q. Now, foods can be injurious without poisoning people, can't they, unfavorable to well being?

A. Generally speaking, no.

Mr. Butler:

Q. They have to be poisoned before they are bad?

A. They have to be.

Q. Now, then,—well, I guess that is all. Do you justify the adding of nitrites to food?

Same objection by claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. To food, to food, to flour? A. For what purpose?

Q. Does that make a difference?

A. Yes, sir, it would make a difference in my answer.

Q. Well, we'll say to bleach it and make it look better, let me get two samples of flour here, to change the color so slightly that you cannot observe the change, we'll say that is the reason, unless you get two samples side by side?

2451 A. Well, I have no particular opinion about the bleaching of flour, the addition of nitrites, Mr. Butler, I don't believe that these substances in amounts that are so minute, that we have no reason to believe that they have any harmful action, there would be no objection to adding them to foods.

Q. Suppose you add a little to every food, how would that be?

Counsel for claimant objected to the question as not having anything to do with this case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. If the amounts were very minute I should not hesitate to eat the food myself, or give it to my baby.

Q. All right. Well, now, suppose that in a test diet, for breakfast you get fifteen foods, all poisonous in substance, each one is within the safety limit?

Counsel for claimant objected to that for the same reason.

The Court overruled the objection; to which ruling of the court claimant then and there duly excepted.

Q. And at dinner you get seventeen? A. Yes, sir.

Q. Each one within the safety limit, and at supper you get twenty-two, that is fifty-five in a day, three hundred and eighty-five in a week, sixteen hundred and fifty in a month, twenty thousand seventy-five in a year, one million four hundred and five thousand two hundred and fifty if we live to be three score and ten, of poisonous substances put into our food for the purpose of making the food look better, each poisonous substance as of itself just within the safety limit as to amount?

Same objection by claimant.

A. Yes, sir.

Q. Would that be a good thing or a bad thing?

2452 Judge Scarritt: I object to that as incompetent, irrelevant and immaterial and having nothing to do with the issues in this case and bringing in foreign matters and foreign issues in the case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. Your Honor, I would answer it as a layman very largely, of course.

Q. Can't you answer it as a pathologist?

A. As a pathologist, yes.

Q. What is it?

A. I should say that would be a very bad way to do.

Q. Well, now, Doctor, do you and I not agree that the extent of the badness of it depends upon the extent of the poisoning added, the poison substance added?

A. You would have to draw the line there somewhere between amounts, just within the safety limit, as you have stated them,

and the amounts which made the notion that there would be any possibility of their doing any harm.

Q. Do you think it all right to permit the dairyman who milks the cow to put in a little formaldehyde, the dealer who ships it, put in a little formaldehyde, the hotel man who gets it, put in a little formaldehyde, and each depending upon his own judgment as to how much will make his milk keep better, or sell better or taste better?

Counsel for claimant objected as not within the issues of this case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I don't believe in formaldehyde in milk, generally speaking.

Q. You believe in sulphate of lead in coffee? A. No, sir.

Q. You think it is injurious, don't you?

Counsel for claimant objected to the question.

The court overruled the objection; to which ruling claimant then and there duly excepted.

A. Yes, I think lead is a bad poison, generally speaking.

Q. You think nitrite is a bad poison,—well, you think that nitrites is a very bad poison too, don't you, qualitatively as Dr. Haines put it?

A. Well, I cannot testify as Dr. Haines did; I am not a toxicologist.

Q. Well, but your understanding is that the nitrite group is poisonous?

A. Yes, sir, my understanding is that nitrites are poisonous within poisonous doses.

Q. And your understanding further is that nothing is poisonous unless it is within a poisonous dose?

A. Poison, of course, would refer to the harmful action, yes, sir.

Q. It means quantity, that is right? A. Yes, sir.

Q. There is no poison unless there be enough to do some harm; that is your idea about it?

A. I would include that notion of action, of course.

By the Court:

Q. Sir?

A. I would include the notion of results of the substance upon the individual.

By Mr. Butler:

Q. Now, suppose that the amount of nitrites in one quantity of bread for one breakfast, or food made from flour which is several, what would you think that if in a day you would have fifteen or twenty doses of nitrites?

A. How much a dose?

Q. Well, we'll say, the first one, we'll say that each one is about one-tenth of the safety limit?

Same objection by counsel for claimant.

Q. One-tenth of the limit of safety, one-tenth of the limit of safety.

The court overruled the objection, to which ruling of the court then there duly excepted.

A. And how many doses?

Q. About fifteen.

A. Distributed over what time?

2454 Q. A day?

A. I would not hesitate to take them if there was any object to be accomplished by taking them.

Q. I know, but we'll say you don't want them for medicine?

A. I would not take them.

Q. And there being no object to be accomplished, no object in the interest of health to be accomplished, you would not add any to food, to the bread?

A. I would not add any poison to food if there was no object for doing it.

Q. Let's be perfectly fair Doctor, about this.

A. Yes, sir.

Q. Now, of course, the object is to—part of the object is, the seller might have an object to save money, you see?

A. Yes, sir.

Q. The pathologist or medical man might have an object as to matters of health, do you see; now, then, there being no object as respects health, at all, not at all, nor of the quality of foods, not at all, then do you not think it wrong purely from the standpoint of health to add nitrite poisons to the food of all the people, young and old, and great and small, and sick and well, under all circumstances so they cannot escape taking nitrites?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial, having nothing to do with the issues in this case, and invading the province of the jury.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I have, I have answered that before.

Q. Well, just what is your understanding of it?

A. My understanding of your question is this, would I advocate the adding of nitrites to flour?

Q. In any quantity? A. In any quantity.

Q. However minute.

A. Yes, sir, if there was no object to be accomplished
2455 by so adding it.

Q. No object as respects health or quality of food.

Mr. Elliott: We can't hear this conversation.

The Court: I think that objection is pretty well taken.

A. If there is no object to be accomplished—

The Court: No object as to health.

Q. Or quality of the food, he says.

The Court: Bettering the food.

A. Bettering the food, I would not add them; I would not advocate their being added.

Q. You would advocate their being prohibited from the standpoint of health, would you not?

The Court: He may answer.

Counsel for claimant objected to the question as asking for an improper conclusion.

To which ruling of the court claimant then and there duly excepted.

A. No, I don't know that I would.

Q. Well, I mean strictly from a standpoint of health, we will take this fact into account, that they are added by means of an engine making a gas and constant liability of expansion; for example, one man might use five horse-power to make the gas to go into a hundred barrels a day, we'll say, and another man might use half a horse-power to make the gas go into a thousand barrels a day, depending upon what they want to do with respect to appearance of food, not as respects quality, but as respects appearance, merely. Now, then, on the same assumption that there is no purpose as respects health or quality of food, and unskilled hands are putting poison into the staff of life, the products of flour—

A. In extremely minute amounts, you add that to your question?

Q. Well, in extremely minute amounts but the liability of greater amounts constantly presents by reason of the
2456 fact, don't you see, here is a man who believes it is pure air and he has a five horse-power in there, and he

is putting out a hundred barrels, and he squirts it into both generators all he can get into the flour?

A. That is getting to be a pretty long question.

Mr. Butler: Well, I withdraw it.

Judge Scarritt: I object to that.

Mr. Butler: I withdraw the question.

Judge Scarritt: Nonsense and ridiculous.

By Mr. Butler:

Q. You say you would not, there being no purpose from the standpoint of health or the quality of food, recommend or advise the adding of any nitrites, however minute, to flour?

A. If there was nothing to be accomplished.

Q. Would the fact that poisons existed in other foods by addition or from the nature of the foods and other nitrites, be a factor in the element of nature?

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial, and asking for a wrongful conclusion of the witness, having nothing to do with this case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. It could depend on a good many things, what the other poisons were, their amounts, and so on.

Q. Call them nitrites, call them the same poisons added to other foods or naturally produced in them by decay, and we'll say that the amount of nitrites in other foods is very substantial and you get enough so that the system is pretty well loaded already, then would you not say that there was a very strong reason for keeping nitrites out of flour?

A. No, I would not.

Counsel for claimant objected.

Q. What is that? A. I would not.

2457 Q. Suppose that in the other foods there were all the nitrites that could be used with safety to health, then would you not say that they ought to be kept out of flour?

Counsel for claimant objected as incompetent, irrelevant and immaterial and not based on any evidence.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. It is very difficult for me to assume these things.

Q. Well, I ask you to assume that as a scientist; you are not responsible for the fact, I take that responsibility, and leave it to the jury whether it exists or not. Now, I ask you to get your learning as a scientist, if in other food would have already been added all the nitrite poison, viewed from the standpoint of health people can safely bear, then do you not think it right, viewed from the standpoint of health, to exclude them from wheat flour?

Same objection by claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. No, I don't know that I should advise their exclusion; I think there are other ways of accomplishing the warning that I would give not to take any more nitrites.

Q. You would not exclude them from flour but keep on adding if the health of the people is already imperiled by poisonous adulterants in foods, and the question now before you as a scientific gentleman is this, shall or shall not poisons be added to flour merely to affect the color, what would you advise as a professional gentleman, to add them or to keep them out?

Counsel for claimant objected to the question as asking for a wrongful conclusion of the witness, not based on the testimony in this case, and having nothing to do with the issues.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

2458 A. Does your question involve the same elements as the previous one, cumulative nitrite poisoning?

Q. Yes, and formaldehyde poisoning, and chromate of lead poisoning, the health of the people is already imperiled by adulterant poisons, including nitrites in large numbers of doses every day, already in danger, and we assume that, and then I ask you as a learned gentleman and pathologist whether or not we ought to add them to flour or exclude them from flour?

Counsel for claimant objected to the question for the reason of being a mere argument intended for the jury and not for the witness.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. Please answer, Doctor?

A. Well, I am trying to, Judge. I don't believe in poisoning the nation wholesale, if that is an answer to your question.

By the Court:

Q. Don't believe what?

A. Don't believe in wholesale poisoning like he has pictured to me.

By Mr. Butler:

Q. On the assumption of the question would you be tempted to keep nitrites out of flour or to put them in?

Same objection by claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. No, I am not concerned about the presence or absence of nitrites in flour.

Q. Well, I say, assuming the fact to be that nitrites in baking foods and in other foods, substances which are added are already a peril to health, assume that to be the fact?

A. Yes, sir.

Q. Without the flour. Then I ask you whether, as a gentleman concerned in the processes of health in the country, you would advise the adding of them to flour or would you advise to keep them out of flour?

2459 Same objection by claimant.

Objection overruled; to which ruling of the court claimant then and there duly excepted.

Q. You say you are not concerned with flour, but I want your professional view now.

A. Well, if I could believe that people were generally on the point of dying from poison, I would not give them any more poison, Mr. Butler.

Q. Well, before you would not want to give them any more poison, must you be convinced that they are on the point of dying from poison?

A. I must be convinced that the ordinary dietary of people is very harmful.

Q. Before you would advise keeping poisoning out of food you must be convinced that the food already is very harmful, must you?

A. Yes, I have no evidence of that.

Q. Now, if you are convinced that food is already more harmful you will be in favor of adding poisoning to food if it can be justified commercially?

Same objection by claimant.

The Court: overruled the objection; to which ruling of the court claimant then and there duly excepted.

A. I don't know that I should base it on a commercial justification.

Q. You won't base it on consideration of health to add any poison it does not hurt health to add any poison to bread, does it, does that help health any, Doctor?

A. It might under certain conditions, yes.

Q. I mean, now, take the human family as a race, I want to ask you if adding nitrite poison to the bread in any quantity however minute helps health?

Counsel for claimant objected to that as asking for a wrongful conclusion, not based on any testimony in this case, bringing in outside issues, and not trying this case at all.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

(Question read by the reporter)

A. I am unable to answer that question.

Q. Don't you know? A. No, I don't know.

Q. What is your professional opinion whether or not it would improve the health and strength and power of the human race to add poisons in small doses to every bit of food which is the product of flour that they consume; can you answer that?

A. Would you include in your question one poison and make it very minute amounts?

Q. Yes, nitrites. A. I would say it was harmless.

Q. I didn't ask you that.

A. I beg pardon, I misunderstood.

Q. I said improve the health of the people, the health of the race, by putting in a little poison?

A. Maybe, might be possible.

Q. What makes you say that, Doctor, now, let me see,—I withdraw that. Does the history of the race justify the inference that the people who eat poisonous food develop into greater people than those who eat good, wholesome food?

A. No, but it is just as easy for me to assume the one combination as the other, Mr. Butler, when you put these poisons in minute amounts.

Q. Does it? A. The best of my judgment.

Q. All right, suppose we put that minute amount in the bread and a like minute amount in every other article of human food?

Same objection by counsel for claimant.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. Can you tell us whether or not that would be a good thing or a bad thing for health? A. The same poison?

Q. Yes.

A. If you are dealing with the same poison, and added minute amounts and took enough of the different varieties of food, you would sooner or later reach your danger point; I would not recommend.

Q. Where is the danger point?

2461 A. When you approach poisonous doses.

Q. Where is the danger point, how much is safe to feed babies, how much nitrite poisoning in bread is safe to feed babies from the time they are born until they die of old age, how much is safe? A. How much nitrites?

Q. Yes, in view of the fact that there is nitrites in ham and nitrites in the air and nitrites in the water and nitrites in decaying vegetables and the same amount of all unknown amounts, now, how much would be safe to add to the flour?

A. Well, I have no evidence of nitrite poisoning in babies, generally speaking.

Mr. Butler: I move to strike that out.

The Court: It will be stricken out; not an answer.

Q. You are not a doctor, are you; you have no evidence of nitrite poisoning in rats either, have you?

A. No, sir.

Q. How much nitrites would be safe to add to flour in view of all the other nitrites of unknown quantities that existed in the air, and in the water, decaying vegetables and cured hams, and all those things, the same poisonous nitrites, how much ought we to add to the flour in order to make the baby grow; is that the reason for doing it, if you have regard to health, Doctor, if you have regard to babies' health and welfare?

A. I don't know that nitrites make babies grow.

Q. Yes, sir; well, how much would be safe, having regard to the health?

A. I think a considerable amount of nitrites are possible.

Mr. Butler: I move to strike that out.

The Court: Yes, sir.

Q. I want you to define to the jury how much we may safely put in the bread in view of the unknown amounts there are in other goods?

A. I could not testify as a toxicologist, you are dealing with poisons, and—

Q. Can you say that any would be safe in the bread in view of the unknown amounts of other things?

A. I certainly can.

2462 Q. How much, then? A. In small amounts.

Q. What do you mean by small amounts?

A. Minute amounts, so minute that we cannot detect during life or after death any evidence of disease.

Q. All right, we'll double that amount, would that be safe, double the minute amount you first thought of?

A. Yes, I think it would.

Q. Quadruple that? A. Yes, sir, I think it would.

Q. A hundred times that? A. I don't know.

Q. A thousand times?

A. I think it would be dangerous, approach the dangerous ground.

Q. So that you say that these nitrites if in sufficient quantity are dangerous and poisonous in food?

A. If in sufficient amounts they will produce a nitrite poisoning.

Q. And still you favor putting them in?

A. If there is any object to be accomplished.

Q. If you could make money by putting them in, you would say "put them in"?

A. No, I would not put it on a commercial basis.

Q. What do you mean when you say if there is any object to be accomplished? A. If there is any desirable object.

Q. What do you mean by desirable.

Mr. Elliott: I object to it as mere repetition.

A. I have answered many of these questions.

Q. Well, I am about through, but I have not asked you to tell what object will justify adding poisons to flour yet; if I have you just repeat it and I will let you go.

A. I haven't any particular object to advocate the putting of nitrites in flour.

Q. Well, you said you would advocate putting it in flour if there was any object for it?

A. If there was a good reason for doing so.

Q. Now, what do you mean by a good reason; what good reason can there be for putting poison in flour, that is what I am trying to get at.

Counsel for Claimant objected to the question.

The Court: He may answer.

2463 Q. What good reason can there be for putting poison in flour, that is what I am trying to ask you as a pathologist?

Judge Scarritt: Well, I can conceive of several.

By the Court:

Q. Go on and answer, Doctor; what reason?

A. The question, as I understand is what reason can you conceive of putting nitrites in flour, or poisons in flour?

The Court: Yes.

Q. Keep adding poisons to flour every day all the time?

A. I believe that it is done to make the flour white.

Q. Yes, sir. A. And the people like white flour.

Q. Yes, sir.

A. Whether that is a good reason or not I do not pretend to pass on.

Q. Well, is that to your mind, viewed from the standpoint of health, a good reason for permitting millers to put such nitrite poisoning in flour as they think will make the flour more salable because more white?

A. Providing the nitrites are in harmless amounts I would have no objection to their doing that.

Q. And you dare not write on that blackboard what amount of nitrites you consider safe, dare you, for any person?

A. I don't care, I am not testifying as a toxicologist and this involves the use of a poison and a poisonous test.

Q. Will you write on the blackboard so we cannot forget it, the maximum amount of nitrite poisoning which you will approve of to be added to the food per pound of flour this whole country over? A. Yes, I will do that.

Q. The maximum amount that you will approve of?

A. Of course, my doing this is simply as a layman; I am not doing this as a toxicologist.

Q. The maximum amount of every pound of flour consumed in the United States.

A. 1000 X, this would be the maximum 1000 times the amount now used. Thousand times the amount now used.

(Writes on blackboard "1000 X the amounts now used".)

2464 Q. Go to the blackboard and write down the amount now used? A. I don't know the amounts now used.

Q. Then without knowing the amount now used in order to help your friends, you swear that we can multiply it by a thousand [—] be safe?

Judge Scarritt: He has been asked about 1.8.

Q. I think that is a fair question, go and put down your multiplier.

The Court: That is a matter of primary arithmetic.

By Mr. Butler:

Q. As a layman, now, not a toxicologist or a pathologist, go and put down your multiplier.

The Court: Put down your thousand, then your X, then something to the right of it.

A. Can I state that as well as I can put it on the board?

Q. No, I don't want to forget it.

Judge Scarritt: He can state it.

(Witness writes on the blackboard: 1000 X the amount now used, 1000 X the amount of nitrites which in flour human experience has proven harmless=)

By the Court:

Q. Now, say equals what, equals what?

Judge Scarritt: Let him write it.

The Court: No, it is primary arithmetic, equals what?

A. Equals the amounts which would be inadvisable.

By Mr. Butler:

Q. Set the amount right down so we can measure it and weigh it. A. I cannot do that.

Q. In figures.

A. That would involve my testifying as a toxicologist.

Q. And this is only as a layman? A. As a pathologist.

Q. Now, let me see how this scientist as a layman reads: "1000 X the amount now used, 1000 X the amount of nitrites which in flour human experience has proven harmless— equals how much?"

2465 A. Equals the amount which we—

By the Court:

Q. Equals death, or what?

A. No, equals inadvisable amounts, amounts which may not be recommended, Your Honor.

By Mr. Butler:

Q. Here is a grain of nitrite, the average dose is put down by the Pharmacopoeia. How many times that grain would you justify to each ton of flour; human experience shows that this amount is taken, a few of those grains, three or four times a day, did not even have medicinal effects. Now, as a pathologist, Doctor, how many grains of nitrite of sodium would you justify in adding to a pound of flour?

A. I would not have any reason for recommending that any would be added.

Q. How many do you believe could be added with safety?

A. Why, I would have to know the quantity ordinarily taken in a day in the flour that is consumed by human beings.

Q. That is the best you can answer, is it? A. Yes, sir.

Q. And have you written on the blackboard the best reason that you can give, the average amount, that is safe for us to take?

A. I have written approximately what I believe to be safe.

Q. Would that not be more than a grain a day?

A. I do not know.

Q. In a pound? A. I do not know.

Q. If more than a grain a day in a pound of flour, a grain a day per person, would you justify it?

A. A grain a day per person?

Q. The earth around and the world over?

A. Of sodium nitrite?

Q. No, of amyl nitrite, the nitrites are all like poison, and two drops of amyl nitrite will prostrate you.

Counsel for the claimant objected because no evidence on which to base it.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

Q. And amyl nitrite will be poisonous?

Counsel for claimant objected.

The Court: He may answer.

2466 A. I don't know what amyl nitrite—I believe it is more poisonous, but, Your Honor, I am not a toxicologist.

Q. We are talking about amyl nitrite.

A. The amyl nitrite I don't know about.

Q. How many grains of amyl nitrite would you justify adding to the bread, food stuffs, of each individual?

A. What for?

Q. I mean for any purpose, to make the bread look whiter and preserve health, and make money for the millers?

A. I could not give you the amounts.

Q. Would you add any?

A. I don't know that I would add any.

Q. Don't you think that would be injurious to health?

A. I couldn't say, I have no experience.

Mr. Elliott: I object to this as incorrectly reporting the evidence, because there is not a particle of testimony from any source that anybody ever added nitrites to flour to make it white, amyl nitrite.

The Court: He may answer.

Q. If two drops of amyl nitrite inhaled will make a person feel the effects of the nitrite, how many drops may the millers add to flour without impairing health?

Counsel for claimant objected to that because it is not based on any evidence in the case.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I don't know.

Q. Do you believe as a pathologist it would be wrong to use so deadly a poison as amyl nitrite in flour for any purpose?

Same objection by claimant.

A. And in any dosage?

Q. Yes, sir. A. No, I don't know.

Q. How much would you admit in? A. I couldn't say.

Q. Well, when you can't say would you admit the part of a drop in a loaf of bread, one-tenth of a drop of amyl nitrite in a loaf of bread?

2467 Same objection by claimant.

The court overruled the objection.

To which ruling of the court claimant then and there duly excepted.

A. I don't know of any reason of adding amyl nitrite to flour for any purpose whatsoever.

Q. Don't you know that the amount of nitrites that the evidence shows has been added to flour is greater per pound of flour than two drops of amyl nitrite which will give heavy medicinal re-action? A. Inhaled?

Q. Yes, sir, don't you know that to be the truth?

A. You want me to compare the one with the other?

Q. No, I am now asking you if you don't know it to be the truth that the amount of nitrites in a pound of this flour seized is greater in weight than two drops of amyl nitrite?

A. No, I don't know that.

Mr. Elliott: I object to that question because not supported by any evidence in the case.

The Court: I want to say once and for all, and I have said it a good many times, that I am not passing on the evidence. Of course if the assumption is wrong, why, the conclusions are of no value, or very little.

A. No, sir.

Q. Assume that to be the fact, Doctor, rely upon it, as the truth, then would you say that it would be safe to add a thousand times the amount now used?

A. I cannot compare amyl nitrite with the nitrites in flour.

Q. Let us assume that there is half a grain of nitrite added to a pound of flour by bleaching, let us assume that, will you say that it will be safe to multiply that by a thousand, a thousand times the amount now used?

Judge Scarritt: We object to that as not based on any evidence.

2468 The Court: He may answer.

A. No, I don't think it would.

Q. Suppose there is 1 1/100 of a grain added to the pound of flour, would it be safe to multiply that by a thousand?

Same objection by claimant; same ruling; to which ruling of the court claimed then and there duly excepted.

A. Might be.

Q. You think it would be? A. Might be.

Q. Ten grains to the loaf?

A. No, I doubt if that would be safe.

Q. You don't think ten grains of this poisonous nitrite?

A. I don't know why anybody should take ten grains of nitrites in a loaf of bread.

Counsel for claimant objected as not based on the evidence.

Q. I'm trying to find out how much you think is safe. You have marked down there that thousand times what is used now. Now, I told you that there is one 1/1000 of a grain used.

A. In what?

Q. In a loaf of bread.

A. And in order to eat one grain of nitrite you would have—

Q. Eat a loaf of bread?

A. Eat a thousand loaves of bread.

Q. No, one loaf of bread. A. In order to get one grain?

Q. Yes.

Counsel for claimant objected as not based on any evidence.

Q. On your prescription each loaf we take one grain of nitrite? A. Yes, sir.

Q. Would you recommend it?

A. I think it would be very harmless.

Q. You would recommend it for children? A. Yes.

Q. You would recommend it for the sick?

A. If there is any reason for doing so, yes, sir.

2469 Q. Oh, no, I am not speaking of reasons, I am speaking of health.

A. I would not recommend it for any general use unless there was some reason for it.

Q. You would strike out the minutest quantity if you viewed it in the light of health alone, wouldn't you?

A. If there was no reason for doing it.

Q. No reason except health, you would eliminate it, wouldn't you, wouldn't you, Doctor?

A. Well, I have no knowledge of its being deleterious to health.

Q. Well, I say you have no knowledge that it is not injurious to health?

A. In the test you are assuming a grain in the loaf, possibly, yes.

Q. A grain in the loaf, you have no knowledge that the amount of nitrite in the loaf will injure health?

A. No, I have no knowledge of it.

Q. Do you think it is safe to give a person a grain of nitrite every day they live?

A. It is my impression, but I am not a toxicologist, I could not testify to these doses of poisons.

Q. All right. Do you think it is safe to give a five-year old boy a grain of nitrite from that time on until his death, is that your opinion? A. Might be.

Q. Well, do you think so, have you been answering that a grain of nitrite—

A. For how long, and how often, and so on?

Q. Every day. A. Once a day?

Q. Every time he eats bread.

A. Every time he eats a loaf of bread?

Q. Yes, and we'll assume he eats the bread each day.

A. A five year old boy?

Q. Yes, as long as he lives he has to take a grain of this nitrite every day.

Counsel for claimant objected to the question.

2470 The Court: You may answer.

To which ruling of the court claimant then and there duly excepted.

A. I don't think it would hurt him.

Q. Would you as a medical man, if there was no reason for it, justify adding a grain of poison, these nitrites, every day to the bread stuffs of the human family?

Same objection [my] claimant.

A. I would not, not add any nitrites.

Q. If there was any reason for it, like making the flour whiter? A. I don't see why it should not be added.

Q. You think there would be a grain added each day, how much would you justify as a reason?

A. The minutest amount that would accomplish the purpose desired.

Q. Suppose we take a grain to the loaf of bread, would you add that?

A. This I would aim to accomplish against my best knowledge of the poisonous effect.

Q. Well, your best knowledge of the poisonous effect would be that a grain would be harmless?

A. That is my opinion; it is not based upon any experience.

Q. A grain and a half? A. I don't know about that.

Q. Two grains?

A. Two grains might be perfectly safe for an adult per loaf of bread.

Q. I mean for the human family, as a whole, each member of it, two grains per loaf of bread?

A. Well, it might be perfectly safe.

Counsel for the claimant objected.

Q. Three? A. I think it would be risky.

Q. Two and a half? A. I don't know.

Q. So you think it would be safe for two grains per loaf of bread per day, for each person capable of eating a loaf of bread per day, two grains of nitrite poison?

A. That is my impression but of course I am not a toxicologist; I can't testify to these poisons.

2471 Q. Doesn't every medicinal man know that when this amyl nitrite, in solution, and you inhale it, two drops will make one sick, and three will make him rattled and two and three or four will kill in some cases?

A. We don't inhale flour.

Q. You don't inhale flour? A. No.

Q. So therefore you say that you could well introduce poisons in the flour to the extent of two grains per loaf of bread for to get it a little whiter?

A. Well, all of our experience is based upon the flour going into the stomach.

Q. Yes, I know, and you say from your experience as a pathologist that two grains per loaf of bread would be all right in order to make flour a little whiter?

A. That is my impression as a pathologist, yes.

Q. Now, do you believe that to be true, and would you recommend as a publicist to the people that it is safe, if you want to, to add two grains of organic nitrite poisoning to each loaf of bread?

Counsel for claimant objected to the question for the same reason.

The Court: He may answer.

A. I would not recommend it without more experimentation than I have got, if I was called upon.

Q. How many rats would you have to examine before you did? A. I would examine rats and other animals too.

Q. How many other animals would you have to examine?

A. Oh, rats and dogs and lots of animals, before I would take the position of passing upon such a weighty question as you have asked me.

Q. What would you examine in the rats and dogs and cats and bears, and so forth, to find out whether or not two grains of nitrite organic poisoning per loaf of bread would be a good thing for the human family?

A. I would examine for evidence of destruction of the blood.

Q. Would you look at the spleen?

A. I would first of all.

Q. What else?

A. I would look on the lymphatic glands too, but especially the spleen.

2472 Q. Yes, and if you found no evidence of chronic methemoglobinemia in the spleen, you would say put it in the bread, would you, is that it?

A. No, I would say I have no evidence that such amounts have any harmful effect.

Q. Yes, how much nitrites did you understand Dr. Haines gave to the rats?

A. I don't remember the dosage, it is in testimony yesterday.

Mr. Butler: Do you remember it, Mr. Elliott?

Mr. Elliott: No, I do not.

Q. Wasn't it a grain a day, or something like that?

A. I don't remember.

Q. Now, without ever having found any evidence of chronic [met] methemoglobinemia in the spleen of any animal living or dead, if we hire you to tell us whether two grains would be safe in each loaf of bread, you would go and look at some more spleens, and if you did not find any evidence of chronic methemoglobinemia in the spleens, you would come back and say "put in two"; then if we wanted to put in three, you would go and try it again on the rats; and if you didn't find what neve has been found, you would tell us to put in some more, would you?

A. I certainly would subject the matter to experimentation.

Q. I know, but if you found negative results on these spleens that would justify putting in more?

A. I would report to you the result of the experiment; I would not be called upon to recommend what you did.

Q. But I would ask your opinion, assume that I did, what would you say, could you put in three if you didn't see it in the spleens?

A. If you asked my opinion, that would be another matter that we have to discuss between us.

Q. Well, I am discussing it with you now. What would you say, let us assume we had two grains in each loaf, and then you examined the spleens of rats and didn't find anything that never was discovered, no chronic methemoglobinemia 2473 in the spleens; then I would say, Doctor, will it be safe to put in three, and if you examined some more spleens and didn't find a thing that never was found, would you tell me to put in the three?

A. Oh, that involves something that is not within my experience at all, Mr. Butler.

Q. I know, but you said before you would justify more than two grains in the loaf you would have to examine the spleens of some lower animal that had been treated with it?

A. For destruction of the blood.

Q. That is, chronic— A. Methemoglobinemia.

Q. By nitrites?

A. By nitrites, in this question, yes, sir.

Q. Now, you say nobody ever heard of it?

A. We know it occurs in the acute methemoglobinemia.

Q. You know it never has occurred, never has been observed, but you knew it would occur if they got nitrites enough?

A. In acute poisoning it occurs.

Q. I am speaking of the chronic poison, you don't know it would also occur if they got nitrites enough?

A. That is a matter of common knowledge amongst pathologists.

Q. Now, then, how many grains of nitrites per day will it take to chronically poison a guinea pig so that the constitution will show it?

Counsel for claimant objected to the question as repetition.

A. I don't know.

The Court: He may answer.

A. I don't know.

Q. Didn't you tell me— A. I don't know.

Q. Didn't you tell me that no such thing ever was found?

A. I don't know how much nitrites it would take to produce the chronic methemoglobinemia in a guinea pig.

Q. Will it produce it?

A. Most certainly, I can vouch for that.

Q. How? A. My experience as a pathologist.

Q. Did you ever find it?

A. I found analagous conditions.

2474 Q. No, but did you ever find that? A. Anything—

By the Court:

Q. No, the question is did you ever find it?

A. I have never seen the result in the constitution of a chronic methemoglobinemia, and I have answered that question.

Q. In any animal? A. Yes, sir.

Q. Well, you have looked for it over and over again?

A. No, sir.

Q. You have looked for it thousands and thousands of times?

Counsel for the claimant objected.

A. I have examined thousands of spleens for pigments and never found any evidence of a chronic methemoglobinemia, no, sir.

Q. Thousands and thousands negative results show that it could not happen? A. No, sir.

Q. Does not the negative result with Dr. Haines, that you got on Dr. Haines' rats show that it could not happen?

A. Not at all; it simply shows that in the dose he used it did not happen; that is all it shows.

Q. Oh, yes, so the negative result is absolutely worthless?

A. Not at all, it had positive value so far as that experiment went.

Q. How much chromate of lead would you justify adding to coffee?

A. I don't know anything about chromate of lead except the name.

Q. How much formaldehyde would you justify adding to milk?

Counsel for claimant objected to the question as repetition.

The Court: He may answer.

A. I would not add any formalin to milk.

Q. Why? A. Because I don't think it is a good thing.

Q. Why? A. Because formalin is a poison.

Q. Why is it a poison? A. I don't know that.

Q. Isn't it all right to add poison to milk?

A. I don't know why.

Q. Formalin poison? A. I don't know why.

Q. Well, why in quantities, in so minute quantitation that it won't hurt?

2475 A. I don't know what could be accomplished by it in such minute quantities, I would make it safe.

Q. I call your attention to Exhibit 75, a little flask marked B on that exhibit, it shows four milligrams of sodium nitrite, the equivalent of the nitrite at the rate of 1.8 parts to the million in a pound of the flour that was seized, and then ask you to assume that that shows four milligrams of nitrites exist in a pound of the seized flour, four milligrams of it there; now, that exists in each pound of seized flour.

Judge Scarritt: We object to that assumption; there is no evidence that it does exist there at all.

Mr. Butler: Yes, Mr. Morey proved it.

Judge Scarritt: He got that from a drug store, didn't get that out of the flour, that stuff you got there.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

By Mr. Butler:

Q. A pound of the seized flour shows four milligrams of poisonous nitrites. Now, a thousand times four milligrams would be four thousand milligrams. Now, there are sixty-five milligrams in a grain. If you divide four thousand by sixty-five milligrams in a grain, sixty-one plus is produced, which would show according to your answer, applied to the bleached flour, that sixty-one grains of nitrite organic poisons might safely be added to each pound of flour. I call your attention to that computation to the end that you may understand the testimony as it is applied here.

Judge Scarritt: I object to that as not based on any answer that the witness has given.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

2476 Q. Do you want to change it on that assumption of fact?

Judge Scarritt: I don't understand what your assumption was.

Q. That is his thousand multiplied by the amount now used, that is in this flour seized, would give sixty-one grains of poisonous organic nitrites per loaf of bread, and ask whether the Doctor desires to modify that or not, I don't care, I simply wanted to call his attention to the computation.

Mr. Elliott: If Your Honor please, we object to that question as incorrectly reporting the evidence; there isn't any evidence at all that four milligrams of sodium nitrite is in flour.

Mr. Butler: You did not listen to my question. Mr. Morey, a witness, brought before the court some sodium nitrite he got in a drug store, four milligrams, to show the amount of poisonous nitrite that there would be in a pound of this flour, according to the lowest analysis 1.8 parts per million, that is four milligrams. Now then assuming that there are four milligrams of poisonous—organic nitrites in each pound of the seized flour, thousand times that, would put sixty-one grains of poisonous organic nitrites in each pound of flour, and I ask you, Doctor, whether in your opinion that would be injurious to health?

Judge Scarritt: We object to that because Mr. Morey swore himself that there was no organic nitrite poisoning in this flour.

The Court: For reasons apparent to you gentlemen, that I am not passing on what the evidence is, the objection will be overruled.

To which ruling of the court claimant then and there duly excepted.

A. No, I don't think I could advise that.

Q. Now, take your next proposition of fact, which you
2477 have written on the blackboard, would you say that it would be safe to use a thousand times the amount of nitrite which in flour human experience has proven harmless. Do you want that to stand?

A. That is my general notion.

Q. Now let us assume that human experience has proven that two grains is harmless; you say it would be in your opinion. Now let us assume that that is the maximum amount that human experience has proven to be harmless?

A. Two grains of—

Q. Nitrite poison per pound of flour, that is the amount I understand you— A. Assuming that?

Q. You prove that I understand, from the standpoint of health? A. No, I don't think two grains is poisonous.

Q. Then would you say that you would recommend a thousand times that amount?

A. A thousand times what amount, of the first calculation or the—

Q. No, two grains, we will assume that human experience has shown that two grains of nitrite is not harmful, just what your opinion is then would you say that a thousand times that would be safe?

A. I think it would be approaching the danger point.

Q. You think 2,000 grains per pound of flour would approach the dangerous point? A. Yes, I do.

Q. You think it might disturb digestion?

A. I don't know what it would do.

Q. If you had to eat 2,000 grains of nitrites in each loaf of bread weighing a pound— A. Sodium nitrite?

Q. No, poisonous organic nitrites? A. What one?

Q. Amyl.

A. I think that would be very dangerous, amyl nitrites.

Q. You think it might impair the health of the nation if that was made customary? A. Certainly if it was inhaled.

Q. What would be the fatal dose? A. Inhaling?

Q. Yes, sir. A. I don't know.

2478 Q. And sodium nitrite what is the fatal dose?

A. I don't know.

Q. Would not 61 grains in all human probability if administered at once kill half the men on that jury?

A. No, sir.

Q. It would not? A. No, sir.

Q. What is a poisonous dose?

A. I don't know but large doses of sodium nitrite have been taken by mistake without death.

Q. How much?

A. I don't know, the exact figures, I could get a report if you wish to know exactly.

Q. Do you know why it was that Dr. Webster when he was trying to find methemoglobin in the blood declined to take more than two grains, a big powerful young man?

A. No, sir.

Q. I think some of the others that he administered it to.

Mr. Elliott: No evidence he declined to take anything at all.

Mr. Butler: Why did he take it, because if he was after methemoglobin a little more would have done it.

Mr. Elliott: That is your assumption.

Mr. Butler: He gave the other fellow a little more, I am not sure.

Redirect Examination

By Mr. Elliott:

Q. Dr. Lecount, amyl-nitrite is very volatile?

A. I believe so.

Q. I will ask you if the deposit of pigment in the spleen is not the evidence of methemoglobinemia?

A. It is an evidence of methemoglobinemia.

Q. And in your experience is that one of the most reliable tests that you can apply?

A. That is the one that I would use, that test being in my field of work.

Q. Is that the most reliable test that you personally know of? A. It is.

Mr. Butler: What test is that?

Mr. Elliott: Examination of the spleen.

2479 Witness: For pigment.

Recross-Examination

By Mr. Butler:

Q. Would 61 grains of nitrite of sodium administered daily to a human being for a month give methemoglobinemia in the spleen of a man?

Counsel for claimant objected to the question.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. I don't know.

Q. Would it in the rat? A. I think so.

Q. Would it— A. 61 grains given to the rat a day?

Q. Every day for a month?

A. Oh, yes, I think it would without any question.

Q. In a guinea pig? A. Yes, sir.

Q. In a guinea pig you think that 61 grains a day would give chronic nitrite poisoning to the guinea pig?

A. Yes, sir.

Q. Why didn't you give it to the guinea pig and find out for sure before you came up here?

Mr. Elliott: I object to that this is not proper recross-examination.

The Court: I don't think it is. Anything further on that point?

Mr. Butler: That is all.

The Court: Now the defendant will call their last scientist.

2480

Morning Session.

Friday, July 1, 1910.

Dr. Paul Schweitzer, called as a witness on the part of claimant, being duly sworn, testified as follows:

Direct Examination

By Mr. Elliott:

Mr. Elliott: If your Honor please, this witness is somewhat deaf and I will have to talk loud to him.

The Court: I am sorry for your misfortune but I am glad for the balance of you so you will have to speak up.

Q. Prof. Schweitzer, give you name, age and residence?

A. Paul Schweitzer.

Q. And your residence? A. Columbia, Missouri.

Q. How long have you resided at Columbia?

A. I have resided in Columbia since 1872.

Q. What has been and what is now your occupation or official position?

A. My present position is Emeritus Professor of Chemistry of the University of Missouri.

Q. Have you any degree, scientific degree?

A. I am a member of the American Chemical Society; a Fellow of the American Association of Science; I am a member of the St. Louis Academy of Science; a corresponding member of the New York Academy of Science; I am an [honorary member of the Missouri Pharmaceutical Association.

Q. What has been your training, or early education in chemistry?

A. I studied in Berlin largely under Henry Rose and Schneider and Sonnenchein, and in Gottingen where I took my degree.

Q. What has been for the past ten years, your speciality or specialities in chemical science?

2481 A. When I was called to Missouri in 1872 my position was Professor of Analytical and Applied Chemistry. I became two years later the head of the department, and as such professor of agricultural chemistry in the College of Agriculture and Professor of Physiological Chemistry and Toxicology in the medical school of the University, and I organized as a part of my regular work with the students and calls what I called then domestic chemistry. My specialty perhaps during the past ten or fifteen years has been analytical chemistry in reference to toxicology and domestic chemistry or sanitary chemistry.

Q. What do you mean by domestic chemistry?

A. Domestic chemistry deals with all those matters as to fact and principle upon which rest primarily the health of the members of the family.

Q. What subjects have you given special attention to, if any?

A. In these classes I dealt especially with atmospheric air in relation to health, ventilation, respiration, that means inspiration and expiration, the composition of air, water, milk and foods; they were the main subjects that I treated.

Q. Now in reference to air what phases of the subject did you deal with?

A. I dealt with the subject in reference to the consumption of air which we took into the lungs and exhaled air, especially in confined rooms demanding an exchange, usually called ventilation; also with the constituents of air that might perhaps be looked upon either as somewhat strange or demanding attention.

Q. Does air contain nitrous acid?

A. My attention to the air containing nitrous acid was first arrested in 1860 or 1861 by the publications in numerous forms of Prof. Schoenbein, who was looked upon and was looked upon until his death as the authority on matters of this kind, and as a result of my attention to what was published and in a minor way to my own tests, I came to the conclusion that atmospheric air invariably contains nitrous acid.

2482 Q. How much of it is there in the air?

A. The amount that I assume as being contained in air, and which I think is also stated by authorities in treatises is 5/1000 of one part in 10,000 volumes of air.

Q. What becomes of this nitrous acid when air containing it is inhaled?

A. In order to answer this question we have to decide as to the total amount of air that we inhale, and this total amount of air that we inhale for a grown person I assume, and other

authorities assume, to be during the 24 hours, to be 10,000 liters—a liter is a little bit more than a quart; these 10,000 liters would then contain, as I calculated it, 5 cubic centimeters of this nitrous or nitric acid, 5 cubic centimeters.

Q. 5 cubic centimeters.

A. 6.5 cubic centimeters, I think, calculated to be about $1/5$ of a grain. We take this air into the lungs, in the moist and warm air in the lungs, and in the narrow passages most of this is condensed and retained, and as a consequence of it we find invariably amounts of this nitric acid in the saliva, or as pointed out first in 1862 by Schoenbein, and also in the fluids of the nose, this amount consists of what is commonly said to be nitrous and nitric acid, most of it in my judgment is nitrous acid, but if I take it to be half and half, then the amount would be instead of a $1/5$ of grain, $1/10$ of a grain.

Q. Are you giving the amount a person would take into their system?

A. This amount $1/10$ of a grain of nitrous acid would be near wholly retained by the body.

Q. Is that the amount that the average adult would take into his system in 24 hours? A. During the 24 hours.

Q. One— A. One-tenth of a grain.

Q. I will ask you this, would the amount of nitrous acid in the air by continuous respiration of man and beast become less in time?

A. If we were to calculate the total amount of this
2483 during the 24 hours by multiplying it with the number of people on our globe and also the animals, we would virtually get on the whole a very small amount of it in the end; the amount in the air would, of course, be decreased unless there were natural processes going on in the air by which this amount would be constantly replenished in the atmospheric air.

Q. In your judgment could nitrous acid in amounts such as you state are absorbed by man, in 24 hours, be called poisonous?

A. I never have looked upon such an amount of nitrous acid as being poisonous. I never called it so, and I don't think that I could be made to call it so by any of the examinations that have been made by chemists and published.

Q. If the bleached flour contains 1.8 parts per million in nitrite reacting material, how much of such material would be found in one pound of flour in grains?

A. Under these conditions one pound of flour would contain just $1/80$ of a grain of nitrous acid.

Q. How much of it would be found in one pound of bread baked from such flour on the assumption that none of it was lost by fermentation with yeast and by baking?

A. If the grain from which such flour had been made was good healthy grown, then such flour should yield for each pound of flour about a pound and a half of bread, perhaps a little less; if one pound of flour makes one and one-half pounds of bread, then one pound of bread, on the assumption which you state that in the process of making this flour into bread nothing was lost would be Oh $1/120$ of a grain.

Q. One one hundred twentieth of a grain. If a person consumed daily one pound of such bread, what relation in quantity of nitrous acid material would there exist between the amount in the bread consumed and in the air inhaled?

A. It would be simply the relation between $1/10$ and $1/120$, that is to say, the amount of nitrous acid that we receive from the air for 24 hours would be 12 times as great as the amount of nitrous acid that we receive by eating one pound of such bread a day.

2484 Q. Could a daily ration of bread such as produced from bleached flour and under the most stringent conditions of not having lost any nitrous acid material in the baking, be deemed deleterious to health if continued during the years?

A. I do consider, if it is otherwise well made, to be just like any other bread, just as healthy as any other bread.

Q. Have you analyzed mineral and domestic waters?

A. Yes, I have analyzed probably more waters than any chemist in the United States.

Q. Have you also tested or analyzed domestic or potable waters for their sanitary points?

A. I made a very large number of chemical sanitary analyses of waters, quite a number of waters found in the city, I mean waters other than the water that is furnished by the single system from the Missouri River. I have for years past always tested these waters among other constituents for nitrous acid and for nitric acid. Nitric acid is found I think invariably in these waters, nitrous acid often, and in some of these waters here I have found a combined amount of nitrous and nitric acid of from 40 to 60 parts per million parts of such water.

Q. Does your last answer apply to nitrites and nitrates in the waters?

A. The quantitative analyses that I made in such instances would combine both.

Q. Is the presence of nitrites or nitrates in potable waters as such looked upon by the analyst as dangerous?

A. No, not at all.

Cross-Examination

By Mr. Butler:

Q. If you find nitrates in water you are suspicious of the water, aren't you? A. In some of them.

Q. Yes, and condemn water if there be a trace of nitrites that may be associated with germs of some kind?

2485 A. Yes, sir, it was commonly supposed that the nitrites were an indication of germs, and some of these germs might be dangerous to health.

Q. That is the common understanding of medical men, I think, is it?

A. It has been until a few years ago.

Q. And now about the air, doctor, I suppose there are nitrates in the air, nitrites, in the air?

A. Yes, sir.

Q. That varies, some places there are more than others?

A. It does vary some, yes, sir.

Q. Sometimes there is more than others? A. Yes, sir.

Q. It depends upon a great many conditions, weather and so forth? A. Yes.

Q. Now, doctor, I don't understand chemistry very well, and a good many men have been talking to me from the witness stand here, and have confused me some, and I would like to see if you and I understand something just alike. Is NO_2 —is nitrogen peroxide, is that a poison—poisonous substance?

A. NO_2 or N_2O_4 is certainly poisonous because it is corrosive.

Q. Very corrosive, is it not?

A. Yes, sir; Humphrey Davy who discovered the gas and tested it by taking the fever, was nearly killed by it.

Q. And Sir Humphrey Davy was one of the most eminent men of your learned profession? A. Yes.

Q. Was almost killed by this very gas which he discovered?

A. He had the gas made in order to verify certain physical factors.

Q. Now it is known, is it not, to all chemists then, to all students and [and] professors, that nitrogen peroxide NO_2 or N_2O_4 is a poisonous dangerous substance?

A. It is a corrosive, yes.

Q. How about nitric acid, is that a poison too, HNO_3 ?

2486 A. In a concentrated form it is corrosive and of course a poison.

Q. Very poisonous, is it not?

A. In concentrated form, yes, sir.

Q. So the degree of toxicity depends upon the concentration at least? A. Upon concentration, yes.

Q. Certainly. Now about the nitrous acid.

A. I would also deem that poisonous when it is concentrated sufficiently to be corrosive.

Q. Yes. Now I understand that if you bring this gas NO_2 gas into contact with moisture with water, whether it is in flour, or water tank or wherever it is, it will make nitric-acid and nitrous acid? A. Yes.

Q. In equal chemical or molecular parts? A. Yes, sir.

Q. And the amount that is, will depend upon the gas that is used the amount of gas?

A. On the weight of the gas, yes, sir.

Q. If there is water enough to combine with it?

A. Yes.

Q. Now chemical action is a continuous performance, isn't it? A. Yes, sir.

Q. It keeps going on, and then after there is produced in the flour the nitrous acid and the nitric acid, they go to work in the flour on various bases, don't they?

A. They are presumed to do so.

Q. Well, that would be the natural chemical action?

A. Yes, sir; yes, sir.

Q. And nitric acid when it combines with bases in the flour makes nitrates, do you hear me, nitrates?

A. I have no opinion as to what action the nitric and nitrous acid form from this gas we produce upon the flour or any constituent of the flour.

Q. Well, I know, but take it generally speaking that
2487 nitric acid—I am trying to distinguish between nitrates and nitrites, generally speaking that nitric acid combines with something that is a nitrate, am I right about that?

A. It would have to be in solution, that is to say the nitric and nitrous acid would have to be, for to reach a large number of the particles of the flour.

Q. I was not speaking of flour particularly, but I was generally of nitrate.

A. Oh, yes, yes.

Q. The nitrate is made by the use of nitric acid with a base? A. With a base, yes.

Q. And nitric acid, I am not now speaking of Alsop bleacher? A. Yes, sir, yes.

Q. The nitric acid will combine with flour?

A. Well, I don't know, the chemist usually has a certain definite idea when you use the term "combine".

Q. Well, I will say, act on it?

A. Yes, act on it in proportion to the amount that is present.

Q. And nitrous acid would act on it? A. Yes, sir.

Q. And make nitrites? A. Yes, sir.

Q. Now nitrites are the poisonous group, are they not?

A. I know some persons call them poisonous.

Q. Are you a toxicologist?

A. I claim to be one; I taught toxicology in the University Medical school for eighteen years.

Q. Well, we will not go into any fine citing or definition, but speaking in the common language of the people, they would belong to the poisonous group?

A. In order to answer the question I must give my definition of poison.

Q. Well, all right.

A. A poison is a body which in small quantities will
2488 act deleteriously upon the organism. Now then that demands still an explanation of small quantities and deleterious action. By a small quantity I mean quantities like one grain, and by deleterious action I mean such an action upon one or the other organ of the body that has been more or less clearly defined or described. In this sense, poison in these amounts does not necessarily mean a fatal dose. Now, then, answering your question as to whether nitrous acid is commonly assumed to be a poison?

Q. I mean by the common speech of people generally?

A. Well, it is now a technical question that you ask me, and I must answer it in accordance with my understanding of a poison. I do not consider it a poison.

Q. Yes, sir.

A. Because I do not believe that one grain of nitrous acid in combination if sufficiently dilute will prove deleterious to my organism—organization.

Q. Is it true that some people are killed by doses of poison that would not be fatal to other people?

A. No doubt so,—let me modify—all right, that depends, the killing of the people depends wholly upon accidental circumstances as to the quantity of food taken in the stomach.

Q. Sometimes a very minute dose of a poison may kill a very strong man?

A. Only when the constitution of such person was in some way near the point of dissolution, when a very slight impetus would carry him off.

Q. Sometimes in sickness a very slight impetus might carry off a weak person, a young person or an old person or indeed a middle aged person? A. Yes.

Q. Is that true? A. Yes, sir; yes, sir.

Q. Now you believe, do you not, in wholesome food?

2489 A. Oh yes, I believed in it long before the Department of Agriculture took the matter up.

Q. Yes, you are opposed, are you not, to adulterating foods by the addition of poisons? A. From beginning to end.

Q. Yes, you are opposed are you not to formaldehyd in milk—give me that bill of fare—are you not?

A. Oh yes, because it is a preservative for food, and the food that we take in the stomach is intended to be digested.

Q. And that makes it injurious to health, does it not, because it loads the digestion and makes it harder to digest?

A. My attitude in the matter has been one of prevention, that is to say. I do not want to ascertain in my butter there [—] any amount of formaldehyd, or any conditions more deleterious to my health, nor do I want my friends to try it on their families.

Q. You would think that formaldehyd in any quantity ought to be viewed from the standpoint of health, kept out of food, wouldn't you?

A. I have opposed the use of formaldehyd, especially in the city here, where it was used in times gone by in large quantities in any amount.

Q. Yes, and so that lead chromate on coffee—you know about their fixing up the coffee so it will look better in color, by lead chromate? A. No, I never—

Same objection by claimant.

The Court: He may answer.

To which ruling of the Court claimant then and there duly excepted.

A. But of course, I would not want the smallest part of it in the coffee.

Q. No matter whether you heard of it or not, the most minute part of it in the coffee you think would be against the public health or the welfare of the public, viewed from the standpoint of health, do you not?

2490 A. I am opposed to it, not because I know definitely that it is dangerous to health, but because I don't want to try it on my own body or want my friends to try it on their body nor to find out whether it is or not, don't want to make the experiment.

Q. The rule, therefore, for the safety of health is this, is it not, Dr. Schweitzer, that until it has been shown beyond the slightest doubt that a foreign substance is not injurious when added to food that foreign substance, especially if a poisonous substance, or poisonous in nature, or capable of poisoning in large amounts, should be prohibited, that is the rule, isn't it?

A. Yes, I held that position even when it is being proven not to be poisonous, I do not want any of these substances in the food.

Q. No, and that is on account of health, food is the most important thing, isn't it, the purity of food, to keep it free from

adulterants and poisons even in the minutest amount, is the most important thing for the preservation of the human family?

A. It is.

Q. Now how about borax in buttermilk.

Same objection by Claimant.

The Court: He may answer.

Q. Should that not be condemned in any quantity?

A. My position has been the position of Dr. Wiley, and that is, I don't want any borax in any of the food that I take, not that I am able to prove that it is deleterious to health, but naturally no food contains it, that means that nature—indicates thereby that we should not put it in.

Q. Yes. Now how about this coal tar dye that they put in it? A. I am wholly opposed to their use.

Same objection by claimant.

Same ruling.

To which ruling of the court claimant then and there duly excepted.

Q. Why?

A. Because no article of food that is produced by nature that is dyed by dye stuffs like this coal tar dye stuff; if
2491 nature had intended to produce food that looked nicely colored, I have no doubt that they would be found. To color them artificially in my judgment is reprehensible.

Q. And also reprehensible if to make artificial coloring a poison is used, is it not?

A. If a substance coming under my definition of poison was to be used I would object to it in any quantity.

Q. Yes. Now, then so over dying or coloring any food substance— A. Even butter.

Q. Even butter, by anything that is poisonous in its nature, you condemn, do you not, as dangerous to public health?

A. I object to coloring any food in any way whether it be a coloring substance that is poisonous or not.

Q. Well, doctor, don't you think that the color of a loaf of bread might be so improved to make it even by a little poison so as to make it more appetizing and therefore make you fatter and make you enjoy more bread because by just touching it up a little of the poison, you would not advise it, but make it so beautiful that it would make you eat more and make you fat?

A. If the substance that has been used for improving the appetizing looks of the bread was not poisonous then I would rather think that the article of food looking so appetizing

would stimulate my appetite and produce an amount of secretions enabling me to digest a larger quantity of such food than it otherwise would.

Q. But if the substance used is poisonous by its nature?

A. I would be—

Q. Can't you, of course, take that just right along, say cherry that they fix up, the so-called Maraschino cherry, it looks so much nicer when it is red, don't you think, wouldn't it balance it up so that the color—a little poison in the color, would necessarily off set the attractiveness of the cherry, and so a little poisonous colored matter in the butter will make it a nice creamy yellow, would just offset the attractiveness, so that the attractiveness would be a little greater value than the poison would harm, don't you think that could be done by chemists and toxicologists and druggists and bakers and butchers and dairymen and all?

Judge Scarritt: We object to the cherries.

A. I have always tried to reach principles that I could apply to these matters, and after I have reached the principle I would not like to deviate from it, that is to say, making a food look more appetizing and nicer, after it has been acted upon [that] it was before seems to me always an objectionable method so I know that in some cases it is done. I have seen the man that sell apples on the stands here and in New York early in the morning get up and rub the apples with a cloth to make it nice and shiny, the apple under these conditions is more appetizing than when it looks dull and perhaps covered with dust; that perhaps would not be objectionable; but the whole method usually leads to dangers, which ought not to be done.

Q. What color in butter do you object to; are there not many nice vegetable artificial colorings that are not poisonous at all that they use for butter?

Same objection by claimant.

A. Personally I rather prefer a yellow butter.

By the Court:

Q. A what?

A. A yellow butter as obtained naturally in the spring of the year and which is called grass butter.

Q. Yes.

A. But eventually the grass passes away and the butter then is artificially colored by the coloring matter that I presume is in no way dangerous to health, personally I prefer such butter; Dr. Wiley objects to that color in butter but it is a matter of personal preference.

Q. Well, I understood you to say that you object to artificial coloring in butter; did I understand you wrong?

A. In a general way, but I say personally I prefer said butter to a colorless butter.

Q. Oh yes, to a colorless butter, but the coloring matter of butter is not poisonous at all?

2493 A. No, sir.

Q. Purely harmless?

A. That is to say if the coloring matter is natural.

Q. Yes, I understand, I mean such as are only used; I didn't understand that that was a poison. Now I wanted to ask you about saccharin in canned peaches, for example; what do you think of saccharine?

Counsel for claimant objected for same reason; the court overruled the objection; to which ruling of the court claimant then and there duly excepted.

A. That is a substance that has an unnaturally sweet taste.

Q. It is the sweetest thing known? A. How.

Q. It has more sweetness of taste than any other article?

A. Yes, sir, it is about a hundred times as sweet as sugar, but there is no measure by which I can measure it, but saccharin is not a substance that our organism can use, that is to say, it passes out of the organism unused; the sugar that we take is vital and we get the benefit of it, and to use saccharin in any amount and in any food in order to make that food appear like being sweet, I look upon as a crime that ought to be punished.

Q. Yes, because it is dangerous to health, isn't it?

A. Not dangerous to health but because it is a fraud.

Q. A fraud, you think a fraud makes it appear like something that it is not?

A. Preserved fruits or vegetables that are sweet, they naturally suppose that that sweetness is produced by sugar.

Same objection by claimant; the court overruled the objection; to which ruling of the court claimant then and there duly excepted.

Q. That is they make the thing appear like something that it is not? A. Yes, sir.

2494 Q. And you think that ought to be punished as a crime? [—] Putting false appearances in food.

Q. How about fluorin to preserve sweet cider or make it look better, which is it used for, to preserve or make it look better, do you know?

A. I don't know, we must in our food take quantities of fluorids, in our natural food, because the animal and the vegetable contain fluorid, it can therefore not be said that small

quantities of fluorids in themselves could be detrimental to health, but the addition to the food of more fluorid than it would naturally contain without stating so on the label under which that food is put in the market, I look upon as reprehensible.

Q. Yes, that is notwithstanding the system requires some fluorin still you condemn the addition of fluoride to foods unless they label fluorids added? A. Exactly.

Q. So that people may know. A. Oh yes, yes.

Q. What they are putting into them, you believe in that, don't you?

A. Exactly. My position in reference to pure food from the beginning has been that I will concede to any man to sell any food, whether it is poisonous or not, only he has to label it in case it is poisonous poison; then each person is advised, he will buy it on his own responsibility.

Q. That is if food have poison added to it, you think the thing ought to be labeled, "poison"? A. Poison, poison.

Q. And if they want to eat, let them eat it, is that it?

A. Certainly if you then buy it with poison on it, you can not lay the blame on any one else [by] yourself.

Q. That is right, in other words, you believe in telling the truth on labels? A. Telling the truth on labels.

2495 Q. Are you familiar with this strawberry jam that is made out of timothy seed, dioxid of soda and coal tar dye?

Counsel for claimant objected for the same reason; the court overruled the objection; to which ruling of the court claimant then and there duly excepted.

A. I have made investigations in Washington, and I confess I never bought any to eat them, only those that were put up in my own household by my wife from fruit that she bought in the market.

Q. Well, has it come to your knowledge that some of the strawberry jam on the market contained not strawberry, but timothy seed, to simulate the appearance of the strawberry seed, dioxid of soda or sodium [benoate] which is the same thing, and coal tar dye; has that come to your knowledge?

Same objection by claimant; objection overruled; to which ruling of the court claimant then and there duly excepted.

A. Yes, the publications of the Department at Washington state so, and I assume that to be true.

Q. Now what do you say as to the injuriousness to health of strawberry jams made out of timothy seed, dioxid of soda and coal tar dye?

Same objection; objection overruled; to which ruling of the court claimant then and there duly excepted.

A. I have personally never eaten any.

Q. I know but as a scientist and toxicologist would you know—I will not bother you about it.

A. I would say, my advice would be to every person not to buy or eat this jam.

Q. Yes. Now about French peas, you are familiar with the article sold in the market as French peas, and served at the restaurant? A. Yes.

2496 Q. Nice and as green as when you pick it?

A. Beautiful green color.

Counsel for claimant objects to the question for the same reasons.

The Court: He may answer.

To which ruling claimant then and there duly excepted.

Judge Scarritt: As I understand, he is a great friend of Dr. Wiley, and he approved of green peas.

Mr. Butler: Who told you that?

Judge Scarritt: I read it in some bulletin here.

Q. Well, I was trying to find out what Dr. Schweitzer thinks. Now are you familiar with the use of copper sulphate to make the peas look green, has that come to your knowledge?

A. I tested many instances peas that looked beautifully green, for copper, sometimes I found a small amount of it; which of course, must have been artificially added to it.

Q. What do you think of copper added to peas, it is some salt of copper, of course, was not metallic copper was it?

A. I look upon such peas, in the first instance as fraud upon the people; in the second instance if a sufficient quantity of copper has been added, as detrimental to health.

Q. Because poisonous, these copper salts are poisonous, aren't they? A. In sufficient amounts, yes, sir.

Q. They make paris green out of it and arsenic?

A. Paris green contains something else than the copper that is more poisonous.

Q. That contains arsenic too, paris green, doesn't it?

A. Yes, sir.

Q. Now what effect upon health has borax and coal tar dye in cheese?

Same objection; objection overruled; to which ruling of the court claimant then and there duly excepted.

2497 A. I couldn't tell. [Now] such case has come under my observation.

Q. Has it come within your knowledge that they have used borax in cheese and also coal tar dye?

A. Oh, it is my knowledge that it has been used.

Same objection.

Q. Now assuming that borax and coal tar dye to have been used in cheese would you think that a good thing or a bad thing from the standpoint of health?

Same objection.

The Court: He may answer.

To which ruling claimant then and there duly excepted.

A. If it is used in order to give that article of food an appearance better than it had, I would stamp it as a fraud; whether in the amounts used it would be proven dangerous to health, that would depend upon the individual case in which the amount of it had been ascertained.

Q. I received the impression from you that you condemned the addition of borax in any amount? A. In any amount.

Q. To any food? A. To any food.

Q. You don't believe borax is a good thing for a food or for the health do you?

A. Only for washing purposes, there it is first rate.

Q. I mean to eat?

A. Eat no, so far as I know no article of food, grain or any that has ever been used by man, contains naturally borax, and if a food does not contain any of these articles I have taken it to be an indication by nature that it is not needed.

Q. Yes. Now, have you in mind, I want to ask about the quantity of nitrites in the air? A. Yes.

Q. In what form is it in the air, ammonium nitrite probably or is it in the form of NO₂ or NO₂ in solution, or nitrous acid, or what form do you think it is in the air, doctor?

A. May I explain how these nitrites in nature are
2498 formed?

Q. Well, I understand, I think that has been explained pretty well, it is by the flash of lightning or decaying vegetation? A. Oh, there are some other conditions too.

Q. Well, very good, if it is not too long?

A. No, in a few minutes. Salt oxids will produce nitrites and nitrates, if you light a lamp let it burn, if you take a glass tube and blow through the side and get the gas in a large beaker glass moist, you obtain an amount of fluid in there sufficient to make the test for nitrous acid; that water either evaporates when you boil it away, or when it evaporates naturally.

For example, if you spread pieces of linen or cotton on the grass, moistened to bleach them, then when this water evaporates a certain amount of nitrites are formed which either pass into the atmospheric air or a certain amount remain with this fabric, so when you water it again, and then wring it out, you get a fluid that will show nitrous acid. Now then that means that the nitrous acid is formed in these places where there is air and part of it passes into the air, if the air contains ammonium as it always does, then of course, this nitrous acid will become nitrite of ammonium but whether the whole of the nitrous acid is converted into nitrite of ammonium or not I couldn't tell.

Q. A good deal of it you would think?

A. Most of it I imagine.

Q. Now of course, the Alsop bleacher, the flaming arc, would also keep adding to the air?

A. The flaming arc acts differently from any of these processes, the flaming arc produces this gas.

Q. And that would add nitrous acid to the air?

A. Nitrous acid as well as nitric acid by other processes into nitrous acid.

Q. Now assume that a five horse power generator in the Berkeland-Eyde—you know about that method of making nitric acid? A. I know in a general way.

Q. They make it commercially by the hundreds of thousands of tons?

2499 [A]. Five horse power of that in the air, take the horse power; I am told the voltage is immaterial; they say by five horse power they will in the air produce through the flaming arc, the manufacture of NO₂ and then NO₂ and HNO₂ and HNO₃, I suppose that is the way it goes, 7,000 pounds of nitric acid. Now assume that in a little flour mill, manufacturing 100 or 200 barrels a day, that they produce gas enough to make 7,000 pounds of nitric acid in the air in a year's work, do you not think that they would contaminate the air and the food and the flour very seriously?

Counsel for claimant objected as not based on the evidence.

The Court: He may answer.

To which ruling of the court claimant then and there duly excepted.

A. It would depend upon the amount of food on which it was to act.

Q. I say a hundred barrels of flour?

A. It means 20,000 pounds if the barrel contains 200 pounds.

Q. Yes, that is right, yes. And a hundred?

[Q]. Well it would be as I figure it out, it would be about that much solid nitric acid in a barrel of flour, from my finger down, something like that (indicating) that would be pretty near the amount, wouldn't it?

A. As to the quantity I have no knowledge, and I have to take your value.

Q. Well, that is what I ask you to take my word?

A. I would say that such an amount of nitric acid if it was to be turned into the flour—

Q. Yes. A. To that extent would be objectionable.

Q. Yes, or if it was spread in in the finest way?

A. Well, in any way.

Q. So that if this bleaching adds nitrous acid or nitric acid or both in any such quantities as that, or any quantities comparable to that, you would say it would be a bad thing? A. Oh, it would be very bad.

Q. Yes, bad for the health do you think too?

A. Certainly but I have been made to believe that 1.8 parts of it is to the million parts of flour,

Q. Yes, I understand, but I am asking you, you understand—

A. It is injurious to health in that amount.

Q. You understand, Mr. Schweitzer when I ask you to assume anything you are not responsible for the assumption; all you are responsible for is your opinion, I beg pardon, Professor, I have misspoken your name. I will ask that it be changed, that was wholly unconscious, because somebody mentioned Prof. Keyser who was here, I believe, he also lives in the State.

The Court: He lives in St. Louis, Mr. Keyser does, but has not been called.

Q. Are you an organic chemist, that seems like a very hard thing to understand?

A. I do not profess to be a specialist in organic chemistry.

Q. Do you know this, without going into the fine details or matters of quantity, whether or not nitrous acid will produce the nitroso compounds in flour? A. I think so.

Q. Yes.

A. That is the commonly accepted term of what a nitroso compound is.

Q. And these nitroso compounds are among the most poisonous of the organic poisons, are they not?

A. I don't know whether they are all belong to that category.

Q. Well, I mean are some of the nitroso compounds then, I want it just as you would have it Prof. Schweitzer?

A. Well, I presume so.

Q. Now will the nitric acid produce nitro compounds in flour, appropriate quantities for that purpose being used to get the action?

A. If that means whether the nitric acid, even by a change into some other compound, will act upon flour, I would say, yes.

2501 Q. Did you ever measure the nitrites in the air here in Kansas City? A. In the air.

Q. Yes?

A. No, I never did here.

Q. Do you know whether any determination has ever been made here?

A. Not that I know of; my examination of the air dates back very nearly to 40 years ago and to 35 years ago.

At this point the further hearing of this cause was adjourned until 2 o'clock p. m.

Pursuant to adjournment, court met at two o'clock p. m., Friday, July 1, 1910, and proceeded with the trial of said cause further as follows:

Professor Schweitzer, resuming the stand, was cross-examined further by Mr. Butler, and testified as follows:

Q. Professor, when a person breathes in the atmosphere in which there is a small amount of nitrite reacting material, or whatever name it may be known, that the air usually contains, is it true that all, every bit of the nitrous acid or nitric acid, or nitrite reacting material is absorbed?

A. Probably not.

Q. It would be very difficult, would it not, to make any estimate on that, because even the air that we blow out, after it comes into the lungs, still has some oxygen?

2502 A. I never, myself, made the tests, but of course it would have to be decided by actual tests made with exhaled air.

Q. Now, Professor, do you know of the substance called the xanthoproteid, or the chemical reaction, called the xanthoproteic reaction? Do you know about that?

A. No, I do not recollect it, now.

Q. That is the yellow reaction on proteids? A. Yes.

Q. Which results from—

A. (Interrupting) Yes, I know. I judge so, from the name.

Q. The "xantho" means yellow, I guess. A. Yes.

Q. Do you happen to know whether that is an injurious substance,—a deleterious substance?

A. I do not.

Q. Do you know whether, when eaten, it will be digested totally?

A. If it is introduced into the stomach, I have no doubt that the organ will take care of it. Whether it is digested or not, I cannot tell.

Q. Will it not produce nitro peptones, and some other things which will be combined, and which are very, very poisonous?

A. I don't know whether it produces them.

Q. Do you know about nitro peptones?

A. I know all about peptones, but I don't know about nitro peptones.

Q. And nitro albumoses?

A. No. Peptones, and proteins, I know something about, but about nitro compounds, I do not.

Q. You would expect, would you not, that the nitro [albumoses] and the nitro peptones would be very poisonous?

A. I don't know. I would prefer not to have them in my stomach.

Q. And you would expect that, from the flour that was so treated with nitric acid as to produce these xanthoproteins, that, in digestion, this nitro albumose, and the nitro peptones would be produced, wouldn't you?

2503 A. If there had been enough nitric acid, or enough nitrous acid present to produce a sufficient amount of these bodies.

Q. That is what I mean.

A. I would think that they might prove indigestible, or harmful.

Q. That is the product? A. Yes.

Q. The stuff itself might be poisonous or harmful? The stuff itself might be harmful, or the product of the digestion might be harmful? Is that the way it might be?

A. I would consider them objectionable, and perhaps harmful, but I would not care to explain on what grounds.

Q. I did not intend to ask you that question, Professor. Now, you made some calculations on an assumption that Mr. Elliott gave you? A. As to this flour?

Q. As to this flour that was seized. Your calculation was based on the assumption of 1.8 parts nitrous acid?

A. Nitrous acid material per million parts of flour, yes.

Q. Now, if there was 1.8 of nitrous acid, computed as nitrogen your results would be 3.3 times greater, wouldn't they?

A. No, it would be less. Nitrous acid has a greater weight than nitrogen.

Q. Yes, I know, but the evidence in this case shows that, computed as nitrogen, it is 1.8 nitrogen? A. Oh, yes.

Q. So, your results would be three times more, on that basis, would they not?

A. Yes, they would be in the proportion of fourteen to forty-seven.

Q. Forty-six? A. Yes, forty-six.

Q. So, that would be about three times—three and one-third? A. Yes.

Q. That is near enough for our purposes? A. Yes.

Q. Now, you gave us a definition of a poison. There have been a good many who tried that, have there not?

2504 A. Yes, I know.

Q. And the scientists have never agreed on the same terms, exactly, to define a poison, have they?

A. I considered the matter over forty years ago, and I have considered it ever since, and my definition of a poison is this—

Q. (Interrupting) Well, I have that in mind. You gave me that. I did not intend to ask you for that. What I did intend to ask you was this, Professor, that, different men, different professors, have somewhat different definitions?

A. Yes, certainly, because it is a matter of one's individual judgment, based on one's individual experience and knowledge.

Q. You know Professor Haines, who was here yesterday?

A. I have met him, yes.

Q. Do you know his definition, as published in a text book of legal medicine and toxicology?

A. No, I do not know. I do not know his book.

Q. You have known him for some time—known his reputation? A. I have known of him for some time.

Q. Personally, not until you met him here?

A. I met him lately.

Q. What do you think of this, for a definition of a poison—

Mr. Scarritt: (Interrupting) We object to that, if your Honor please, as not material. The Professor was here on the stand, and he could have been asked the question.

Mr. Butler: But you would have objected that it was not cross-examination, because you had not asked him to define a poison.

The Court: He may answer. The question may be propounded.

Mr. Scarritt: And we object for the further reason that the witness says he doesn't know anything about the work.

2505 The Court: It is not material whether the question is read from the book, or stated from memory, or propounded as an original question.

Mr. Scarritt: We except.

Mr. Butler: This is Volume 2, Page 300 and 301.

Q. (Reading) "We may say, perhaps, in a general way, that, in the every-day affairs of life, a substance, to be regarded as poisonous, must be capable of inducing harmful results, if administered in doses of about sixty grains, if a solid, or a teaspoonful, if a liquid. This limitation, although somewhat arbitrary, is often of great convenience in the common use of the word poison, and in the discussion of the subject in medico-legal cases. In order to avoid any uncertainty as to the inclusion of corrosives, and the mechanical irritants, the statutes commonly speak of the administration of poison, or of other noxious or destructive thing, or use words to the same effect. Legal quibbling, in regard to definitions, is thus eliminated, or reduced to a minimum." Now, Doctor, is that not a very fair definition of a poisonous substance?

A. No doubt was so, to Dr. Haines.

Q. And might be so to many other scientists of great renown? A. Yes, might be to a great many others.

Q. So that the term, as talked about in definitions, is relative, and elastic, because the scientists have never agreed as yet, as to what a poison is? Is that right?

A. Yes. There is no definite unit of measurement.

Q. Well, now, within that definition, would sixty grains of nitrite be poisonous in character. I do not mean necessarily fatal, but would it be poisonous in character, in your judgment?

A. According to my definition—

Q. (Interrupting) I did not mean according to yours.

A. Oh, according to Dr. Haines' definition, that would be poisonous, and Dr. Haines would pronounce it so.

Q. So, according to the definition, which I have given you in this question, nitrite would be poisonous, because, if 2506 solid, sixty grains would be harmful, or, if liquid, a teaspoonful would be harmful, to some extent, at any rate, would it not?

A. Well, a teaspoonful means the solution?

Q. Yes, and the grains mean a solid, I think.

A. Yes. But a solution does not indicate the strength. That means to say, a teaspoonful of arsenic may contain ten grains of—

Q. (Interrupting) Let us assume it is concentrated, though. Then, it would be clearly poisonous, wouldn't it, within Dr. Haines' definition?

A. Yes. Scientifically, it is not an exact definition.

Q. And scientifically, it is very bad to give a very exact definition of a poison, is it?

A. It cannot be given, scientifically, because there is no unit of measurement.

Q. And, by unit of measurement, you mean you do not know how, yet, to measure the effect?

A. The same thing that is universally accepted, as the kind of measurement by which to measure things.

Q. Now, Professor, it is pretty hard, is it not, to measure the effect of food, or drink upon a human being? You take a glass of water, or of beer, or of whiskey, or a large meal. There is no known unit of measurement to ascertain the effect upon the system? A. No.

Q. And so it is with other substances, like drugs,—especially drugs? Is that [no] so? A. Yes, yes, that is true.

Q. Even if all individuals were alike, measurement could not be made, could it, because you do not know how?

A. We have no unit of measurement, just as we have no unit of measurement for sweetness.

Q. Or for sound? [Q]. Or for soundness.

Q. Or noise, or sound? A. Yes.

Q. There is no unit of measurement?

A. That, perhaps, might be brought within the range of our understanding by the vibration.

2507 Q. Yes, in another way. That is probable, but it is also true, is it not, Professor, that there is the greatest variability among persons as to the effect of drugs or poisons, or drinks, or food?

A. Yes. The toleration of any drug, or any poison, is different in different individuals.

Q. Power of resistance, too?

A. That is what we understand by toleration.

Q. As you use toleration, you mean the power of resistance?

A. Yes, I meant ability to remove from the body these substances, and by overcoming the evil effect.

Q. Do you not think that it is true, Professor, that adulterated foods—that is, foods adulterated by adding substances which may be poisonous in quantity, may be injurious to health, even though you cannot observe any symptom or effect upon the people when they use the foods, or shortly thereafter?

A. Yes. If there is one, single administration, there may be absolutely no visible effect, and yet, it might prove deleterious to health.

Q. And so, in case of the consumption, in varying quantities, at different times, of different foods, adulterated by different poisons, the health may be broken down, and life destroyed, without any one, even the most skilled physician, being able to select the cause, or combination of causes, in the adulterated foods which brought on the collapse? Isn't that true? A. I don't think that I could concede it.

Q. That is to say, when a man breaks down in middle life, we will say?

A. When a man breaks down, without apparent cause, and where, in the food that he takes and in the conditions under which he lives, there is not detectable any deleterious influence, then we would assume that the general break-down is caused by natural internal causes.

2508 Q. Yes, but is it not true, Doctor, that death comes at all ages, from babyhood to old age, and the most skilled doctors cannot tell what were the causes of death, whether it was hereditary frailty, frailty resulting from excesses, frailty resulting from bad ventilation, frailty resulting from bad food, or insufficient food, or adulterated food. These things may all combine to destroy health or life, and the greatest scientists cannot discover the causes, or, if they discover any cause, cannot measure its effect, or the effect of other causes which contributed to the disaster? Is that not true?

A. I think that the doctor who gives the death certificate always gives a cause of death.

Q. Are you a doctor?

A. No, I am not a physician.

Q. Do you think they always know? A. No, I do not.

Q. That is, they can tell whether it was a contagious disease, or death by violence, or the like?

A. Yes, sir. They can tell what is plainly visible.

Q. And if they don't know anything else?

A. They find a cause for it.

Q. If they do not know anything else, they may call it heart failure? A. Yes, certainly.

Q. And, if our hair has grown gray, they may say it is old age? Is that not true?

A. Yes. The ways of the doctors seem strange to me.

Q. Some of their ways are mysterious to me, but do not many of them write down on their death certificates, "Cause of death unknown"?

A. Only those doctors do that, who know a great deal. Those who know very little never fear to put down the cause.

2509 Redirect Examination

By Mr. Elliott:

Q. Professor, the amount of nitric acid which Mr. Butler indicated to you in one of his questions, I think was six ounces.

A. I estimated the quantity as he held it, there, to be about six ounces of the liquid acid. Not as gas, but as a liquid acid.

Q. How many grains would that amount to?

A. That would mean something like twenty-three hundred grains.

Q. In a barrel of flour?

A. Twenty-three hundred grains in the barrel of flour.

Q. Now, assuming that, with this flour containing 1.8 parts, calculated as nitrogen, or nitrite reacting material, there was nitric acid, how many grains of nitric acid would there be in a barrel of flour?

A. Taking a barrel of flour, weighing about two hundred pounds, it would be two hundred twice, multiplied by one-eighth of a grain or, since my calculations were based on 1.8 parts of nitrous acid to the million, while it is 1.8 parts of nitrogen, it would be probably in the proportion of two and one-half to three. I would say that such a barrel of flour would contain about three grains of nitrous acid.

Q. That is, three, as against twenty-three hundred and thirty-three? A. Yes.

Q. You have stated to Mr. Butler, why you opposed the addition of certain substances to food. Please explain to the jury why you think the nitrite reacting material in bread from bleached flour is harmless.

Objected to as improper redirect examination.

Objection overruled.

Q. Have you got the question in mind? A. No.

Q. You stated to Mr. Butler why you opposed the addition of certain poisons to food. Please explain to the jury why you think the nitrite reacting material in bread from bleached flour is harmless? A. Not poisonous?

By the Court:

Q. Harmless.

A. Harmless? In the statements made this morning, I explained that we inhaled, through the atmospheric air—

Mr. Butler: (Interrupting) Now, this, Your Honor, is repetition, and he starts out with "As I told you once before."

By the Court:

Q. Just briefly state it, and let us get through with it.

A. Since we take, in twenty-four hours, into our systems, through the air, one-tenth of a grain of nitrous acid material, I cannot conceive that any amount of nitrous acid that we take in twenty-four hours into our systems in any way can be poisonous, and, since a loaf of bread contains only one-one hundred and twentieth of a grain, which is twelve times less than we take into the system naturally through the air, could, by no possibility be called harmful.

Recross Examination

By Mr. Butler:

Q. How much nitrous acid would you like to have put in the atmosphere of the room that you have to stay in all the time?

Mr. Scarritt: We object to that as irrelevant and immaterial, and not proper recross-examination.

A. When I first knew that nitrous acid was in the atmosphere why I and other chemists looked upon it with a great deal of interest.

Mr. Butler: I move to strike that out.

2511 The Court: Let him answer.

A. (Continuing) My own experience is as to the amount that is actually in air.

By Mr. Butler:

Q. Well, if you doubled that amount, would it still be safe, in air? A. I don't believe that it will affect me in any way.

Q. If you multiply it by ten? A. I don't believe so.

Q. One hundred?

A. I would not care to give an opinion as to that.

Q. Fifty?

A. I would not. Since you fixed upon ten, I will take ten.

Q. You think you would live in that? A. All the time.

Q. How long do you think you could live in it?

A. I have lived in it about seventy years. I don't know how much longer I could live in the other air.

Q. Do you think it would be a good thing, in a school room, to have an Alsop bleacher pumping NO₂ gas into the air?

A. Much greater danger in the school room, is carbonic acid.

Q. Would you like to have, for health, the nitric acid generator in a school room, freeing it in the air?

A. If I was a rich man, I would prefer to have all the air that comes into the room washed.

Q. And have the nitrites taken out?

A. Everything taken out.

Witness Excused.

2512 Mr. Scarritt: That is our case, except that Dr. Webster was to furnish an authority that Mr. Butler asked about.

The Court: Let him indicate the page.

The Witness, Webster: I stated, in my answer, it was in—

The Court: (Interrupting) State the page.

The Witness, Webster: This is not the book. I could not find the book, in that reference. I have found a reference, here, from Page 830—

Mr. Butler: (Interrupting) Wait a moment. We object to him bringing in any other book.

The Witness, Webster: And this is the reference here, that I had in mind.

Mr. Butler: We object to him bringing in some other book.

The Court: Now, you were asked by counsel to produce a certain reference. Do you say you can or cannot produce it?

The Witness, Webster: I said I thought it was in another book.

The Court: Wasn't it there?

The Witness, Webster: I did not find it there. I found a reference in—

The Court (Interrupting): Never mind. Have you any other witnesses?

Mr. Scarritt: No. We rest.

The Court: Claimant rests.

2513 Thereupon the libelant, in order to maintain the issues on its part, introduced the following evidence in rebuttal:

Frank W. Liepsner, called as a witness on behalf of the Government, being first duly sworn, was examined, and testified as follows:

Direct Examination

By Mr. Butler:

Q. Your name and address, please?

A. Frank W. Liepsner, Washington, D. C.

Q. Were you raised here in Kansas City?

A. I was raised, from the time I was 5 years old, in Kansas City.

Q. And you are connected with some of the scientific departments of the Department of Agriculture?

A. I am assistant chemist, bureau of chemistry.

Q. You are a chemist, are you? A. Yes, sir; a chemist.

Q. Now, since this law-suit commenced, have you examined the substance, that looks brownish in color, and looks something like iron rust, for nitrites, in Government's exhibits 14, 15, 16 and 17, and claimants exhibits 225, 240, 242, 246, and 273? The latter is the water pipe. The others are the gas pipes used to conduct gas in these mills between the electrifier and the mid-way tank, or the agitator, as the case may be, being the pipes through which the bleaching gas passed?

Claimants object to any evidence as to the Government's exhibits, as not being proper rebuttal.

Objection sustained.

Q. Tell us about the claimants' exhibits—whether you examined them for nitrates? A. I have examined those.

Q. What did you find?

A. Shall I give each one in detail?

2514 Q. Yes.

A. I found, in claimant's exhibit 225, a very heavy test for nitrates. In claimants exhibit 240, a strong test for nitrates. In claimant's exhibit 242, a good test for nitrates. In claimant's exhibit 246, a very heavy test for nitrates. In claimant's exhibit 273, I obtained no test, whatever.

Q. For nitrates? A. For nitrates.

The Court: What was the last one?

The Witness: That is the water pipe. 273.

The Court: No nitrates there?

The Witness: No nitrates were found there.

By Mr. Butler:

Q. Did you examine the same exhibits for nitrites?

A. I did.

Q. That is, the scrapings from them? A. Yes.

Q. You may give the result?

A. 225, I obtained a heavy test for nitrites. Claimant's exhibits 240 and 242, I obtained a fair test in each, and claimant's exhibit 246, I obtained a heavy test for nitrites, and claimant's exhibit 273, I was able to obtain no test.

The Court: What one was that?

The Witness: The water pipe, again.

By Mr. Butler:

Q. Did you examine for water soluble nitrite reacting material, claimant's exhibits 246 and 225? A. I did.

Q. What did you find?

2515 A. In claimant's exhibit 246, I obtained a very heavy test for nitrites on the water soluble material, and from the scrapings on claimant's exhibit 225, I obtained a heavy test for nitrites from the water soluble material.

Q. Did you examine exhibit 273, the water pipe, for water soluble nitrite reacting material?

A. I examined this in the same way, and obtained no test for nitrites in the water soluble material.

Q. Did you examine Gov. Ex. 18, for the water soluble nitrite reacting material? A. I did.

Q. Have you now mentioned all of the exhibits,—the scrapings from which you examined for water soluble nitrite reacting material? A. That is all I examined; yes, sir.

Q. What was the result in Gov. Ex. 18?

A. On Gov. Ex. 18, I obtained a heavy test for nitrites in the water soluble material.

Q. Did you heat the scrapings from any of the claimant's exhibits, to ascertain whether or not nitrogen peroxide gas would be given off by applying heat to such scrapings?

A. I heated the scrapings from claimant's exhibits 225, 246 and 273.

Q. What was the result in 225 and 246?

A. In Nos. 225 and 246, by heating in a test tube, I obtained heavy fumes of nitrogen peroxide gas,—the heavy, red gas.

Q. Did you heat the scrapings from the water pipe, Ex. 273? A. I did.

Q. Did you obtain any fumes of the nitrogen peroxide gas, or any nitrogen peroxide gas?

A. I obtained no colored fumes, and could get no odor of nitrogen peroxide.

Q. And you also examined Gov. Ex. 18, the scrapings from that, in the same way, by heating? A. Yes, sir.

2516 Mr. Butler: Is there any objection to that result.

Mr. Scarritt: Yes. No use going into this.

Mr. Butler: Well, I agree to that.

Q. Now, did you heat scrapings from any other pipes or exhibits, except 225, 246, Gov. Ex. 18 and claimant's Ex. 273?

A. Those are the only ones that I tried by that test.

Q. Since this trial commenced, have you determined the nitrite reacting material, or nitrous acid, or whatever it may be, that is in the atmosphere, here at Kansas City?

Mr. Scarritt: We object to that as not rebuttal.

The Court: He may answer that.

Mr. Scarritt: We save an exception.

A. I have.

By Mr. Butler:

Q. Whereabouts in Kansas City?

A. At my home, or rather, my father's home, 4138 Locust Street.

Q. What kind of a day was it, or did you examine on two different occasions?

A. I examined and made two different runs for nitrite reacting material.

Q. In the first run, as you call it, what kind of weather was it?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. The first run was completed during clear weather.

Q. What did you obtain, in parts per billion?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

Q. Nitrite reacting material.

A. I obtained .28 nitrite nitrogen, or nitrite reacting nitrogen, per billion.

2517 Q. That is a little more than one-fourth of one part per billion, calculated in terms of nitrogen?

A. A little more than one-fourth part per billion, calculated as nitrogen.

Q. Now, you made a second run?

A. I made a second run.

Q. What was the weather, during that run?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. The weather, during that run, was partly cloudy.

The Court: What time—in the day?

The Witness: It extended over two days. It was cloudy weather and during one of the nights there was a fierce thunder storm, and a slight amount of rain. On that test, I obtained 1.09 parts per billion of nitrite nitrogen.

By Mr. Butler:

Q. Practically four times as much as you obtained on the first run?

A. Very nearly four times.

Q. Now, have you, heretofore, this year, examined the air at the City of Washington, to ascertain the same thing that you ascertained here in Kansas City, during this trial?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. I have.

By Mr. Butler:

Q. And where, in Washington?

A. At the bureau of chemistry building, at 216 13th Street, Washington.

Q. Is that down town?

A. That is in the main,—well, it is down town, yes, sir.

Q. In what section?

A. Southwest section of the city.

2518 Q. Very nearly where the agricultural building is?

A. Just a block of the agricultural building.

Q. Within a block of the Secretary's office?

A. Just about a block of the Secretary's office.

The Court: Not very far from the Washington monument?

The Witness: Probably two blocks from the Washington monument.

By Mr. Butler:

Q. That was April 15 and 16, 1910?

A. Yes, sir.

Q. What did you find?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. I found 1.22 parts nitrite nitrogen per billion parts of air.

Q. About the same as the second run at Kansas City, which included the thunderstorm? A. Yes.

A. Juror: How is your place, at Locust Street? Are you down on Harris' branch, or low ground?

A. I am not familiar with the country out there, very much.

Mr. Butler: The number is 4138.

The Juror: But I want to know whether it was down in the low-ground, there, right close to the creek, or up on the side of a hill.

The Witness: It is rather well up, overlooking the boulevard, there. I don't know the name of the creek. There is a creek down below us, there.

Cross-Examination

By Mr. Scarritt:

Q. What do you mean by "good", "slight", and "heavy", in making these tests?

2519 A. These were merely qualitative tests.

Q. Just qualitative tests?

A. Qualitative tests; yes, sir.

Q. Where did you get these filings? Did you take them from the pipes, yourself?

A. I took them from the pipes, myself.

Q. Where did you get the pipes?

A. Picked them up off the flour.

Q. Here? A. Yes, sir.

Q. And you took the filings? A. Yes, sir; I did.

Q. How did you get them out?

A. Took a spatula and just scraped from the pipe, over a piece of paper, and allowed them to fall.

Q. How long did you keep them?

A. Before I tested them?

Q. Yes.

A. Just as quick as I could carry them from here upstairs,—probably five to ten minutes.

Q. And you tested them in the laboratory up here?

A. Immediately after I took them.

Q. They were not the filing that were made at the time the exhibits were tendered, here?

A. No, sir.

Q. You took them out, yourself, and made these tests, and they are qualitative tests? A. They are.

By Mr. Butler:

Q. Doctor Shephard was present with you, and took part in the tests?

A. He stood beside me while I was conducting the tests; yes, sir.

2520 Witness excused.

A. S. Acree, being recalled, was examined, and testified as follows:

Direct Examination

By Mr. Butler:

Q. Since Doctor John A. Wesner testified, have you tested oil extracted from flour, treated with nitrogen peroxide gas, to ascertain whether or not it would give the Griess test?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. I have.

Q. Will oil, extracted from flour treated by nitrogen peroxide gas, give the Griess test?

Objected to as not proper rebuttal.

Overruled.

A. It will not.

Q. Since Doctor Wesner testified, did you ascertain whether phenol, subjected to the bleaching reagent, NO₂, would give the Griess test?

Objected to as not proper rebuttal.

Overruled.

A. I tested the nitroso phenol.

Q. What did you find.

Same objection.

A. It gives no Griess test. I have the exhibits here, if you wish to see them.

Mr. Scarritt: We move to strike that out.

The Court: Oh, let us get along, gentlemen.

By Mr. Butler:

Q. Have you the exhibits here?

Objected to as not proper rebuttal.

Overruled.

2521 Claimants except.

Mr. Butler: I will withdraw that question for the moment.

Q. Did you make experiment, to ascertain whether or not terpenin, or terpene, treated with the NO₂ gas, would give the Griess test?

Same objection.

Overruled.

A. I have.

Q. Will it?

Same objection.

A. Only faintly.

Q. Now, have you exhibits here, in pairs, related to the test of the oil, of the phenol, and the terpenin?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. I have.

Q. Let us see those relating to the oil.

Same objection.

Overruled.

Claimants except.

(Witness produces exhibits requested.)

Q. What is exhibit 57, and what is exhibit 58?

Same objection.

Overruled.

Claimants except.

A. Exhibit 57 is the Griess test applied to 10 grams of the fat, which was treated with 2 cubic centimeters of nitrogen peroxide. No. 58 is the Griess test applied to sodium nitrite containing the same amount of nitrogen, nitrogen equivalent to the nitrogen in the fat.

Claimants move to strike out the answer, not being proper rebuttal.

Overruled.

Claimants except.

Q. Have you the exhibits relating to the nitroso phenol.

A. I have.

Q. Let me have them.

A. (Witness produces exhibits.)

Q. What is exhibit 59 and exhibit 60?

2522 Same objection.

Objection overruled.

Claimant excepts.

A. Exhibit 59 is the Griess test, applied to nitroso phenol containing the same amount of nitrogen as in Exhibit 58. This stood one week, and has never developed any color more than the color you see there. No. 60 is the Griess test applied to exactly the same amount of nitroso phenol. This test has stood perhaps 1 hour.

Claimants move to strike out the answer, not proper rebuttal.

Motion overruled.

Claimants except.

Q. Have you the exhibits relating to the terpene, or ter-pentin? A. I have.

Q. Only one? A. One.

Q. Explain what exhibit 61 is?

A. Exhibit 61 is the Griess test applied to terpenin, containing the same amount of nitrogen equivalent to the others that I have spoken of, here.

Q. Gives no reaction, you say?

A. At most, very faint.

Claimants move to strike out the answer, not proper rebuttal.

Overruled.

Claimants except.

A Juror: Where did you get your terpenin?

The Witness: It was bought in the market.

By Mr. Butler:

Q. Whereabouts, do you know? Who bought it?

A. At one of the drug-stores. The young man in the laboratory bought it in a sealed, unopened package, from the drug-store. It was purified terpenine.

Q. What do you mean by an unopened, sealed package?

A. It was unopened.

2523 Mr. Scarritt: We move to strike out the conclusion as to it being purified terpenine.

The Witness: The package was as it was bought. It was stopped up, and sealed, as you would buy it on the market.

By Mr. Butler:

Q. It was a sealed, unopened package?

A. Yes, a sealed, unopened package.

Q. What is exhibit 62?

A. Exhibit 62 is a sample of over-bleached flour which Doctor Boos and I obtained at the Rex Mill, of the Southwestern Milling Company about two weeks ago.

Q. Whereabouts in the mill did you get it.

Mr. Scarritt: Wait a moment. That last question and answer is objected to as not proper rebuttal.

The Court: They may stand.

Claimants except.

A. It was obtained in the pipe which leads the gas into the agitator at a distance of about perhaps 6 inches from the agitator. It was in a position such that the gas was blowing over this, into the agitator.

Mr. Scarritt: We move to strike that out, as not proper rebuttal. Been gone over in chief.

The Court: Now, Judge, I have no objection, but do you want to make an objection, every time, and then a motion to strike it out?

Mr. Scarritt: I want to save the record right.

The Court: Do you think that is necessary, as a lawyer, to do that? If you do, all right.

Mr. Scarritt: I think it is, in view of your Honor's suggestion.

The Court: No, I have never suggested it in my life since the first three months of my practice; but go on. I want to save your record, and I want you to save it. Of course, if you want to make both motions, all right.

By Mr. Butler:

Q. Are there any nitroso amines in over bleached flour?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. There are.

Q. Do nitroso amines in overbleached flour give the Griess test?

A. Only very faintly, when the Griess test is applied directly.

Q. Have you an exhibit showing that? A. I have.

Mr. Scarritt: Same objection.

The Court: Same ruling.

Q. Is exhibit 63 the exhibit which shows the effect on nitroso amines of the Griess test?

Mr. Scarritt: Same objection.

A. It is.

Q. That shows a slight reaction?

A. Very faint reaction.

Q. How long has that been subjected to the test,—that solution. A. About one hour.

Q. If nitroso amines are first treated with an alkali, then will they give the Griess test?

Objected to as not proper rebuttal.

Overruled.

Claimants except.

A. They will. They will give the Griess test, because alkali reacts with the nitroso amines, and forms alkali nitrites, which give the Griess test.

Q. What is exhibit 64?

A. Exhibit 64 is an exhibit showing the Griess test on 2525 a sample of this Rex overbleached flour, after the flour was treated with alkali. The nitroso amines in this sample of flour correspond to twelve parts per million, when expressed nitrogen. These two are compared, side by side.

Claimants move to strike out the answer and the exhibit, as not proper rebuttal.

Overruled.

Claimants except.

Q. Since the testimony given here, that urea in the body is a defense against nitrites, have you made any tests to ascertain whether urea, at any body heat, will decompose nitrous acid?

Same objection.

A. I have.

Q. And to ascertain, if it will, how long it will take?

A. I have.

Q. Have you any exhibits upon that point?

A. I have.

Q. Let me see them.

(Witness produces exhibits.)

Q. By means of exhibits 65, 66 and 67, if they be sufficient for the purpose, you may explain your tests to determine whether or not urea, under given circumstances, will decompose nitrous acid?

Mr. Scarritt: We object to that question, if your Honor please, as irrelevant, incompetent, and immaterial, because it does not include the circumstances.

Mr. Butler: I meant for him to give the circumstances.

Q. Tell the circumstances and manner of making these tests, in detail—that is, in essential detail,—temperature, and quantities, and dilutions, and concentration, and all, and make it plain just how.

A. Exhibit 67 is an exhibit showing an experiment in which 1/10th part per million of nitrous acid, expressed as nitrogen and the equivalent quantity of urea, in the [present] of .2 per-

cent hydrochloric acid, were allowed to react two hours at body temperature or $37\frac{1}{2}$ degrees was the temperature employed.

2526 The Court: 98.4 Fahrenheit?

A. Well, approximately. No. 66 is an exhibit which contains the same amount of nitrous acid as the preceding exhibit, and it is used as a check test, to see whether or not the nitrous acid disappears.

Q. They are really duplicates?

A. They are really duplicates, except the one contains the urea, which might react with the nitrous acid, and the other contains none. The experiment shows no change.

Q. How long exposed? A. Two hours.

Q. Now, as to the acid. What was the hydrochloric acid?

A. .2 per cent hydrochloric acid.

Q. How does that compare? Is that the same kind?

Mr. Scarritt: I want to move to strike the matter out, as not being proper rebuttal, and object, also, to the exhibits, as not being proper rebuttal.

The Court: As to the last three questions the objection is overruled.

Claimants except.

By Mr. Butler:

Q. Is that the same kind of acid that exists in the stomach?

A. It is, and the same concentration, approximately.

Q. Go on.

A. Exhibit 65 is a similar experiment, in which the same amount of nitrous acid was used, and 50 times as much urea, so that we might see all the more, whether urea will react with the nitrous acid. The temperature was the same. The time was two hours. There was no perceptible reaction. The color of the three may be compared.

Claimants move to strike out the answer, as not proper rebuttal.

Overruled.

Claimants except.

2527 Q. Now, in order that we may understand this. Which is the one that hasn't the urea in it? A. Exhibit 66.

Q. Exhibit 66? That is the standard of color?

A. That is the standard.

Q. And the test is, that if the others, having the urea, remain the same, there is no reaction?

Claimants object for the reason it is not proper rebuttal.
Overruled.

Claimants except.

A. That is correct. That is the test.

Q. And if the reaction takes place, the color of those having the urea will become lighter? A. Very much lighter.

Q. And if the reaction becomes complete, it will become transparent in color?

Same objection.

Overruled.

Claimants except.

A. It will.

Q. One of those was subjected 17 hours?

A. These are all subjected to two hours. I have the other experiments, at 17 hours.

Q. You may produce the ones at 17 hours.

(Does so.)

Q. Which is the one without urea? A. 68.

Q. Which is the dilute urea? A. 69.

Q. And then the more urea,—50 times as much? A. 70.

A Juror: Where did you get the urea—out of the mouth, or out of the stomach?

The Witness: It was bought on the market. It was supposed to be pure urea. Exhibit 68 is the exhibit in which we had the same quantity of nitrous acid as in the preceding experiments. The acid used was acetic acid, instead of hydrochloric acid. The experiment lasted 17 hours. In 69, we have exactly the same conditions, with the exception that we have the 2528 equivalent quantity of urea in that solution. Exhibit 70 is an exhibit containing the same amount of nitrous acid, but 50 times as much urea. The experiment was at the same temperature, and lasted 17 hours. The experiments show that there was no perceptible decrease in the amount of nitrous acid due to a reaction with the urea.

Mr. Scarritt: We move to strike out the answer, not being proper rebuttal, and also the exhibits.

Motion overruled.

Claimants except.

Mr. Butler: The exhibits used by the witness in this testimony are offered in evidence.

Objected to by claimants as not being proper rebuttal.

Objection overruled, and exhibits admitted.

Claimants except.

Cross-Examination

By Mr. Elliott:

Q. Doctor Acree, I hand you a book, volume 1, Beilstein's "Handbuch der Organischen Chemie", on page 1291, and ask you to read into the record; if you read German, the under-scored portion.

Mr. Butler: Objected to as irrelevant and immaterial and not cross-examination.

The Court: Objection sustained.

Mr. Scarritt: Make an offer.

The Court: I understand the offer is made, and the offer excluded, and the defendant excepts. It is excluded as not being cross-examination.

Mr. Scarritt: We haven't got this in the record.

The Court: The stenographer may copy the offer into the record, at his leisure.

The offer was as follows:

"Salpetrige Saure zerlegen den Harnstoff in CO₂, Stickstoff und Wasser. $\text{CO}(\text{NH}_2)_2 + 3 \text{NaClO} = \text{NaCO}_3 + \text{NaCl}$
2529 $+ \text{N}_2 + \text{H}_2\text{O} + 2\text{HCl}$; $-\text{CO}(\text{NH}_2)_2 + 2\text{NHO}_2 = \text{CO}_2 + \text{N}_4$
 $+ 3\text{H}_2\text{O}.$ "

By Mr. Elliott:

Q. Doctor Acree, is it not a fact well known to you that nitrous acid and urea mutually decompose each other?

A. They do, in concentrated solutions, and in the solutions such as I have given here. The experiments show that the rate of decomposition is very, very slow.

Q. Do you wish to be understood as testifying that urea will not decompose nitrous acid, in the presence of another acid?

A. I wish to be understood as believing, as having shown that in this concentration—

Q. (Interrupting): That isn't what I was asking. I was asking you if you wished to be understood as denying that urea would decompose nitrous acid?

The Court: At what temperature?

Mr. Elliott: I didn't limit it to temperature,

The Court: Go on.

The Witness: I do not.

By Mr. Elliott:

Q. Now, tell me what exhibit 65 is?

A. Exhibit 65 is an exhibit showing the action of nitrous acid on 50 equivalents of urea, in the presence of hydrochloric acid, during two hours.

Q. Where did you get that urea?

A. As I stated, it was bought in the market.

Q. Who bought it?

A. A young man named Harry Fenton, in the laboratory, bought it in a drug-store in the city. It was in an unbroken package.

Q. Did you make any examination of that urea, yourself, to see if it was pure?

A. No. It looked to be pure, and was in an unbroken package.

Q. Just answer my question. You did not make any examination of it, yourself? A. No.

2530 Q. Now, what was the quantity of urea put in here?

A. The quantity of urea, as I stated, is, in this solution, 1/100th of a milligram of urea, the equivalent of the nitrous acid which I used in there.

Q. Can you give me the amount, quantitatively?

A. I am giving it to you.

Q. Could you put it in parts per million?

A. I didn't put it that way. The amount in here is 1/100th of a milligram.

Q. Then how much nitrous acid did you have?

A. The equivalent amount of nitrous acid, equivalent to that.

Q. Then you had the same amount of nitrous, and the same—equivalent amount of urea?

A. In exhibit 65 there are 50 equivalents of urea to one equivalent of nitrous acid.

Q. 50 equivalents of urea to one equivalent of nitrous acid?

A. Yes. So there are 50/100th of a milligram of the urea to 1/100th milligram of the nitrous acid, expressed as I have stated. That was done to give every chance for the nitrous acid to react with the urea.

Q. Now, tell me what 66 and 67 are?

A. 66 is the check test, with the same amount of nitrous acid, same amount hydrochloric acid, run the same length of time, same temperature. That was simply a comparison to ascertain whether or not any nitrous acid has been decomposed. If the colors were the same,—practically the same, it would

show there was practically no decomposition of the nitrous acid.

Q. And each of these has the Griess reagent in it?

A. Both of them, same amount of Griess test. They were made at the same time, under similar conditions.

Q. And exhibit 65 has the Griess reagent in it?

A. Yes. It has the same amount. Those are comparable in every way, in so far as I have stated the experiments.

Q. At what temperature did you conduct these experiments?

2531 A. At about $37\frac{1}{2}$ degrees centigrade, or about 98 degrees, say, Fahrenheit.

Q. Did you ever make a test for decomposing nitrous acid with urea? Have you ever seen it decompose nitrous acid?

A. Yes. As I remember, those were the stock experiments that we had in our chemistry, in former times. You understand I cannot remember every experiment I have ever done.

Q. But you have seen urea decompose nitrous acid, haven't you?

A. Yes, as I remember. In very concentrated solutions, I might state. If I may state further, these experiments show that in these—

By Mr. Scarritt: (Interrupting) We object.

Mr. Butler: What is it, Doctor?

The Witness: I would like to finish it.

Mr. Scarritt: We object to what these experiments show, because he has gone over it.

The Court: All right.

By Mr. Elliott:

Q. I will ask you if urea isn't used to remove nitrous acid from nitric acid, in every day laboratory practice, and at room temperature?

A. It is used for that, but it is generally used in concentrated form, and boiled up with the nitric acid, in order to decompose nitrous acid.

Q. Now, you say that is not done at room temperature?

A. It may be done at room temperature.

Q. It may be done, then, at room temperature? A. Yes.

Q. At room temperature?

A. Yes. It takes a much longer time at room temperature than it does at a higher temperature.

2532 Q. But, I say, as a matter of fact, that is a matter of every-day common laboratory experimentation, isn't it, at room temperature? That is the fact, isn't it?

A. I shouldn't be at all surprised.

Q. You know it, don't you, Doctor?

A. I should say it would react, of course. It would react more slowly at room temperature than it does at the higher temperature. At room temperature it would react far more slowly, so that, in 24 hours, you would not notice any perceptible decomposition of the nitrous acid.

Q. Why is it, if you used urea, you do not get destruction of the nitrous acid, if this test goes quantitatively?

A. The point is this—

Q. Can you answer me?

A. The reason I do not, is this: In these very dilute solutions, I have here about .1 part of nitrous acid, expressed as nitrogen, per million, corresponding, for instance, to the amount assumed, in Court, here, to be present in saliva. In those very dilute solutions the reaction goes so slowly that the nitrous acid is not decomposed, even as you see, to an appreciable extent, in 17 hours. The reason is this—

Q. Never mind. A. I must finish that answer.

Mr. Butler: Let him answer it.

The Court: Just let him finish, Mr. Elliott, please.

Mr. Elliott: If you are answering my question—

The Witness: I am answering your question. The more concentrated the solution, the more rapidly the reaction takes place.

Q. You have said that two or three times, Doctor. We understand it.

A. Now, wait a moment. In these very dilute solutions, the reaction is taking place, but it is taking place so very slowly that not enough of the nitrous acid is decomposed to allow you to tell the difference between the check and the amount in which the nitrous acid is acting on the urea.

Q. You say it is taking place in there?

A. It is taking place, and so slowly you can't, by this method, measure the amount that has decomposed in 17 hours.

Q. But it is taking place? A. Oh, yes.

Q. You made no experiments, other than at room temperature, did you? A. No. I worked at body temperature.

Q. How do you know this urea was active? A. Is active?

Q. How do you know this urea you used, which you say you did not test,—how do you know it was active?

A. What acted upon?

Q. How did you know it was active?

Mr. Butler: Any good.

A. Oh. The urea was in an unbroken, sealed package.

By Mr. Elliott:

Q. Now, I just asked you this: How did you know it was active, if you made no tests?

A. I took the urea as bought from Merck, which looked to be a very pure article, and was in an unbroken package.

Q. You have stated all that, Doctor. Just answer the question, please. If you made no test to find out, how do you know that the urea used, as a matter of fact was active?

A. I know that urea is active, because I have made other experiments, as I stated, at other times, with more concentrated solutions.

Q. But you didn't make any other with this specimen?

A. Not at this time; no, sir.

Q. And you made no test of this urea other than you
2534 have indicated, did you? A. No.

Q. You made only the tests you have described, but you didn't test the urea? A. No.

Q. Now, I will ask you. Will urea not decompose the nitrous acids which might be present in bleached flour, assuming this amount of nitrite reacting material to be 1.8 part per million?

Objected to as not cross-examination.

Overruled.

A. I should say that it will decompose it, if brought together with it under proper conditions, but, if the concentration be 1.8 per million, for instance, the rate of decomposition will be very, very slow, corresponding somewhat to the experiments I have carried out here.

Q. Have you made any other experiments to demonstrate this fact, than those you have indicated?

A. Demonstrate—?

Q. The facts you are now testifying to—the action of urea?

A. Not at this time.

Redirect Examination

By Mr. Butler:

Q. (Exhibit 68 is shown to the witness) What is that?

Objected to as not proper redirect.

Overruled.

Claimants except.

A. This is the bottle, as far as I can see, of urea, that we used to carry out these tests with.

Q. Is that the very same bottle, or one comparable with it?

A. This is one exactly the same size, and looks; from the amount gone I should say it was the same bottle we had. We had no other bottle in the laboratory.

Claimants move to strike out the answer, [—] improper
2535 redirect.

Overruled.

Claimants except.

A. This is marked "highest purity, Merck."

Mr. Butler: This is offered in evidence.

Witness Excused.

Thereupon both sides rested.

This was all the evidence offered or heard on the trial of said cause.

Court thereupon adjourned to meet again at 9:30 o'clock,
Tuesday, July 5, 1910.

2536 Gov. Exhibit 1.

The following are Exhibits 1-2-3-4-5 & 204 as referred to in evidence and in the stipulation.

United States of America,

Department of the Interior,

United States Patent Office.

To all to whom these presents shall come,—Greeting:

This is to Certify that the annexed is a true copy from the Records of this Office of the,

Letters Patent of
James N. Alsop,

Number 759,651, for granted May 10, 1904,
Improvement in Processes of Treating Flour.

In Testimony Whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington, this 22nd. day of December, in the year of our Lord one thousand nine hundred and nine and of the Independence of the United States of America the one hundred and thirty-fourth.

Seal
Patent Office
United States
of America.

F. A. TENNANT,
Assistant Commissioner of Patents.

No. 759,651,

The United States of America,

To all to whom these Presents shall come:

Whereas James N. Alsop, of Owensboro, Kentucky, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in processes of treating flour, a description of which invention is contained in the Specification of which a copy is hereto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas upon due examination made the said Claimant is adjudged to be justly entitled to a patent under the law;

Now therefore these letter patent are to grant unto the said James N. Alsop, his heirs or assigns for the term of seventeen years from the tenth day of May, one thousand nine hundred and four, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

Seal
Patent Office
United States
of America.

In testimony whereof I have hereunto set my hand and caused the seal of the patent office to be affixed, at the city of Washington, this tenth day of May, in the year of our lord one thousand nine hundred and four and of the Independence of the United States of America the one hundred and twenty-eighth.

E. B. MOORE,
Acting Commissioner of Patents.

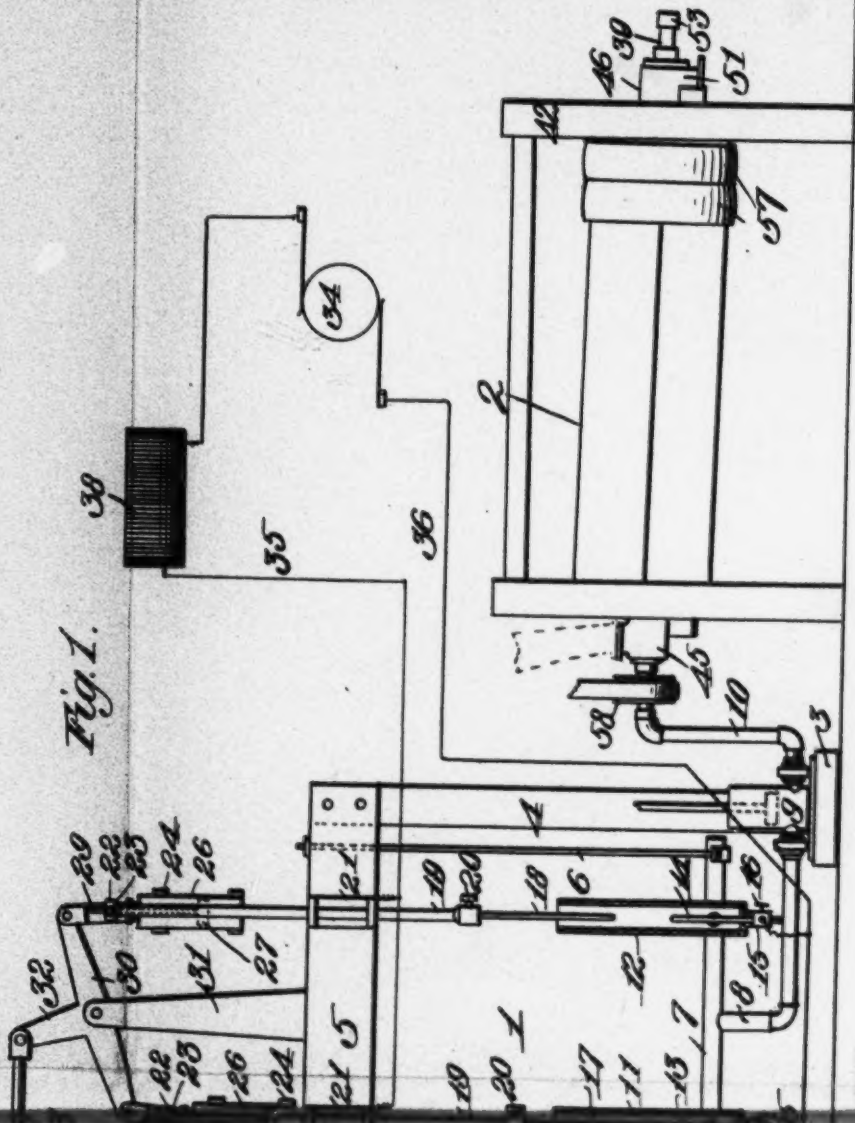
No. 759,851.

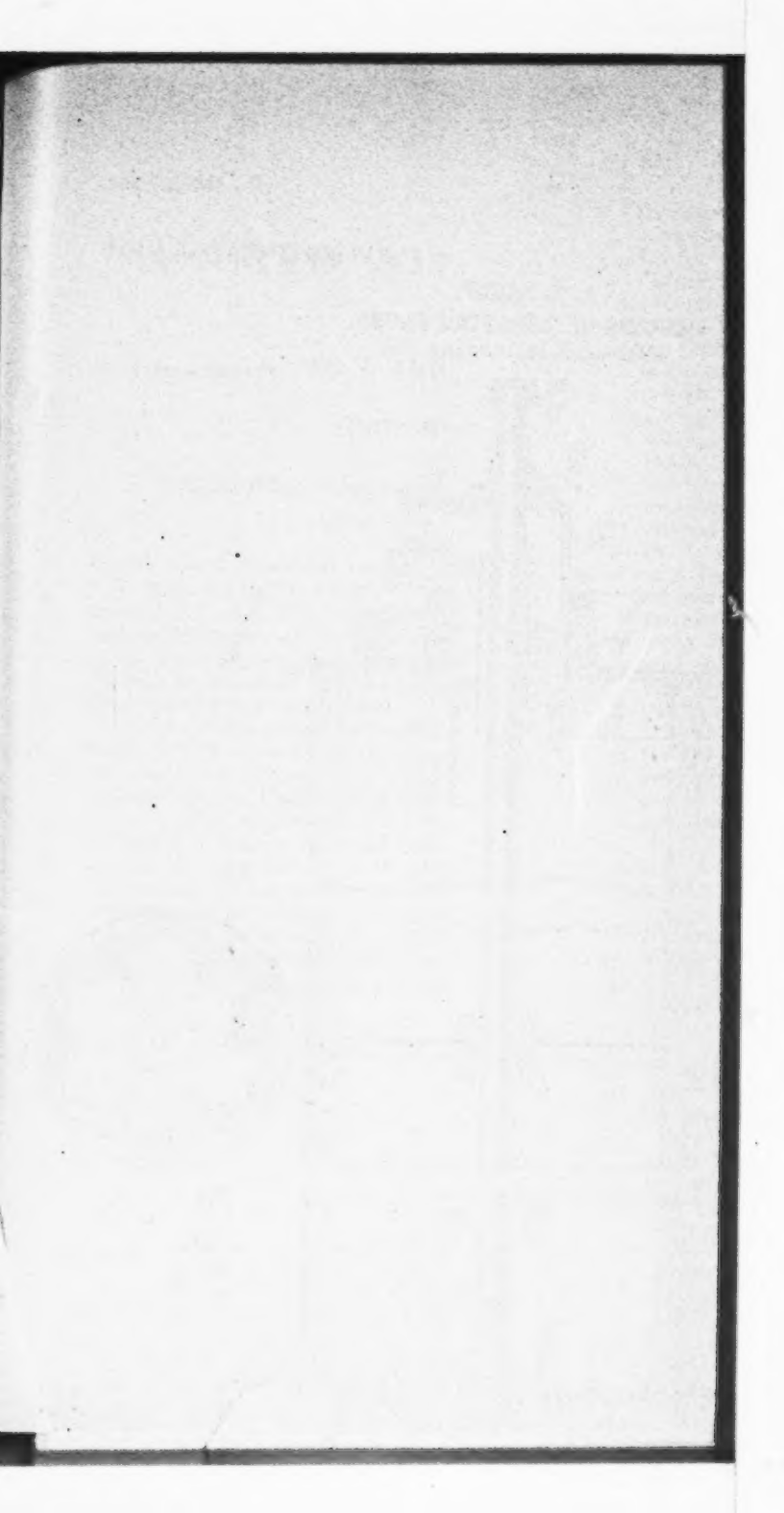
PATENTED MAY 10, 1904.

J. N. ALSOP.
PROCESS OF TREATING FLOUR.
APPLICATION FILED JUNE 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.





THE HISTORY OF THE
CITY OF BOSTON
FROM THE FIRST SETTLEMENT
TO THE PRESENT TIME
IN TWO VOLUMES
BY NATHANIEL BENTLEY
VOL. II
PUBLISHED BY J. B. BENTLEY
1822

2537

Gov. Exhibit 2.

United States of America,
Department of the Interior,
United States Patent Office.

To all to whom these presents shall come, Greeting:

This is To Certify that the annexed is a true copy from the
Records of this Office of the

Letters Patent of
James N. Alsop,

Number 758,883, granted May 3, 1904,

for
Improvement in Methods of Generating Gaseous Mediums
from Air.

In Testimony Whereof I have hereunto
set my hand and caused the seal
of the Patent Office to be affixed
at the City of Washington, this
22nd. day of December, in the
year of our Lord one thousand
nine hundred and nine and of the
Independence of the United States
of America the one hundred and
thirty-fourth.

Seal
Patent Office,
United States
of America.

F. A. TENNANT,
Assistant Commissioner of Patents.

No. 758,883,

The United States of America,

To all to who these Presents shall come:

Whereas James N. Alsop, of Owensboro, Kentucky, has pre-
sented to the Commissioner of Patents a petition praying
for the grant of Letters Patent for an allaged and useful
improvement in Methods of Generating Gaseous Mediums from
Air, a description of which invention is contained in the Speci-
fication of which a copy is hereto annexed and made a part
hereof, and has complied with the various requirements of
Law in such cases made and provided; and

Whereas upon due examination made the said Claimant is
adjudged to be justly entitled to a Patent under the Law;

Now therefore these Letters Patent are to grant unto the
said James N. Alsop, his heirs or assigns for the term of
seventeen years from the third day of May, one thousand nine
hundred and four, the exclusive right to make, use, and vend

the said invention throughout the United States and the Territories thereof.

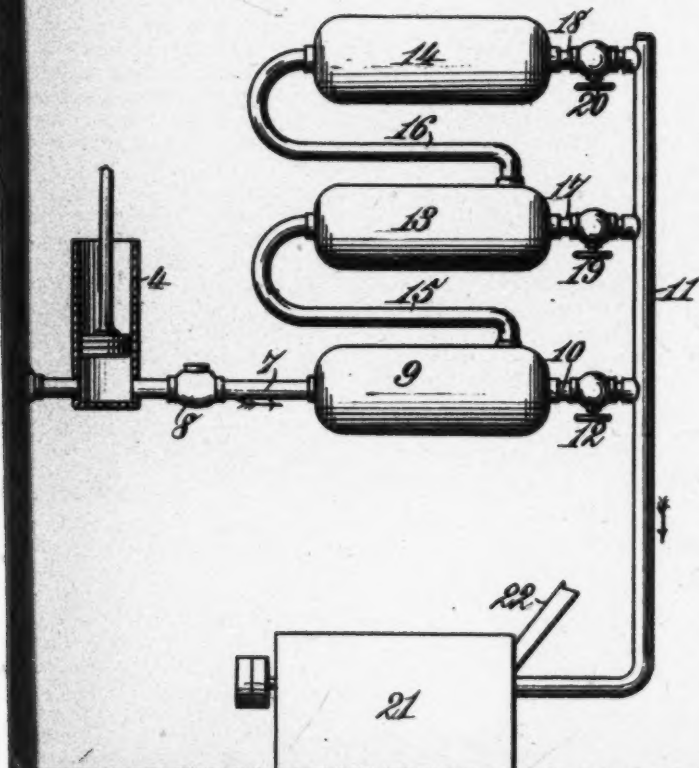
Seal
Patent Office,
United States
of America.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this third day of May, in the year of our Lord one thousand nine hundred and four and of the Independence of the United States of America the one hundred and twenty-eighth.

E. B. MOORE,
Acting Commissioner of Patents.

PATENTED FEB. 13, 1906.

J. E. MITCHELL.
METHOD OF TREATING FLOUR.
APPLICATION FILED SEPT. 24, 1904.



2538

Gov. Exhibit 3.

United States of America,
Department of the Interior,
United States Patent Office.

To all to whom these presents shall come, Greeting:

This is To Certify that the annexed is a true copy from the
Records of this Office of the

Letters Patent of
James N. Alsop,

Number 758,884, granted May 3, 1904,
for
Improvement in Apparatus of Generating Gaseous Mediums
from Air.

Seal
Patent Office,
United States
of America.

In Testimony Whereof I have hereunto
set my hand and caused the seal
of the Patent Office to be affixed
at the City of Washington, this
22nd. day of December, in the
year of our Lord one thousand
nine hundred and nine and of the
Independence of the United States
of America the one hundred and
thirty-fourth.

F. A. TENNANT,
Assistant Commissioner of Patents.

No. 758,884,

The United States of America.

To all to whom these Presents shall come:

Whereas James N. Alsop, of Owensboro, Kentucky, has
presented to the Commissioner of Patents a petition praying
for the grant of Letters Patent for an alleged new and useful
improvement in Apparatus for Generating Gaseous Mediums
from air, a description of which invention is contained in the
Specification of which a copy is hereto annexed and made a
part hereof, and has complied with the various requirements
of Law in such cases made and provided; and

Whereas upon due examination made the said Claimant is
adjudged to be justly entitled to a Patent under the Law;

Now therefore these Letters Patent are to grant unto the
said James N. Alsop, his heirs or assigns for the term of
seventeen years from the third day of May, one thousand nine

hundred and four, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

Seal
Patent Office,
United States
of America.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this third day of May, in the year of our Lord one thousand nine hundred and four and of the Independence of the United States of America the one hundred and twenty-eighth.

E. B. MOORE,
Acting Commissioner of Patents.

2539

Ex. 4.

Order No. Date 2-17-1910
 Lexington Mill & Elevator Co.
 Ship to B. O. Terry
 At Castle Mo.
 P. O. Address Greencastle
 When April 1st, 1910 or sooner
 Terms 1% ten days 30 net from arrival
 625 Cream 5X Flour 5.00

Subject to acceptance by the Lexington Mill & Elevator Co.

2540

Ex. 5.

Greencastle, Missouri, Feb. 17th, 1910

We the undersigned do hereby guarantee Cream 5x & 4x patent flour, sold and made by us to give the purchaser (B. O. Terry) entire satisfaction as to quality, and to be within the meaning of state and national pure food laws.

We the undersigned do further agree if Cream 5x & 4x patent flour do not give satisfaction to customers of B. O. Terry refund to purchaser the purchase price of flour if paid for, and if unpaid for remove flour from his possession at our expense.

LEXINGTON MILL & ELEVATOR CO.
 By Malone, Salesman

2541

Government's Exhibit 7
 6/3/10. Wm. B.

United States of America, Department of the Interior,
 United States Patent Office.

To all to whom these presents shall come,—Greeting:

This is to Certify that the annexed is a true copy from the Records of this Office of the

Letters Patent of
 John E. Mitchell, Assignor to
 Alsop Process Company,

Number 812,764, granted February 13, 1906,

for
 Improvement in Methods of Treating Flour.

Seal
Patent Office.
United States
of America,

In Testimony Whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington, this 22nd day of December, in the year of our Lord one thousand nine hundred and nine and of the Independence of the United States of America the one hundred and thirty-fourth.

F. A. TENNANT,
Assistant Commissioner of Patents.

No. 812,764

The United States of America,

To all to whom these Presents shall come:

Whereas John E. Mitchell, of St. Louis, Missouri, has presented to the Commissioner of Patents a petition praying for the grant of Letters Patent for an alleged new and useful improvement in Methods of Treating Flour. He having assigned his right, title, and interest, in said improvement, to Alsop Process Company, of St. Louis, Missouri, a corporation of Missouri, a description of which invention is contained in the Specification of which a copy is hereto annexed and made a part hereof, and has complied with the various requirements of Law in such cases made and provided; and

Whereas upon due examination made the said Claimant is adjudged to be justly entitled to a Patent under the Law;

Now therefore these Letters Patent are to grant unto the said Alsop Process Company, its successors or assigns for the term of seventeen years from the thirteenth day of February, one thousand nine hundred and six, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this thirteenth day of February, in the year of our Lord one thousand nine hundred and six and of the Independence of the United States of America the one hundred and thirtieth.

Seal
Patent Office.
United States
of America,

F. I. ALLEN,
Commissioner of Patents.

2543 Whereupon, at the close of all the testimony in the case the claimant and defendant asked the court to instruct the jury that upon the pleadings and all the evidence in the case their verdict must be for the claimant and defendant, which request the court overruled, and claimant and defendant duly excepted thereto, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"1. The jury are instructed and charged that under the pleadings and all the evidence in this case your verdict must be in favor of the claimant or defendant herein upon all the counts or charges mentioned in the libel herein."

Which instruction the court refused to give, and the defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"2. The jury are instructed and charged that there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question has been mixed and packed with any substance so as to reduce or lower or injuriously affect its quality or strength, and upon that count or charge in the libel your verdict must be in favor of the claimant or defendant herein."

Which instruction the court refused to give, and the defendant then and there and at the time excepted to the ruling of the Court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

2544 "3. That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question is mixed, colored, coated or stained in a manner whereby damage or inferiority is concealed."

Which instruction the court refused to give, and the defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"4. That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the

effect that the flour in question contains an added poisonous or other added deleterious ingredient which may render it injurious to health."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"5. That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question has been misbranded within the meaning of the Pure Food Act."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"7. That the burden of proving the allegations of the libel to be true is upon the prosecution and that before the jury can find against the claimant or condemn the property
2545 in question on any of the charges alleged in the libel they must find such charges to be true beyond a reasonable doubt and proven not only by a preponderance of the evidence on the part of the government but to the entire satisfaction of the jury."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"9. That the burden is upon the prosecution to prove the truth of the allegations in the libel, that the flour in question has been packed and mixed with a substance known as nitrite or nitrite reacting material and that such substance has been so mixed and packed with the flour as to reduce or lower or injuriously effect its quality or strength, and unless you find that the truth of such allegations has been so proven you cannot find against the claimant or condemn the flour in question under that charge of the libel, and if you fail to so find your verdict upon such count or charge in the libel must be in favor of the claimant or defendant."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"10. That the burden is upon the prosecution to prove the truth of the allegations in the libel that the flour in question has been treated by the Alsop process and that by such treatment the said flour has been mixed, colored and stained in a manner whereby damage and inferiority is concealed, and unless you find that the evidence does so prove that damage and inferiority actually existing in the flour seized in this case has been so concealed by its having been treated by the Alsop

Process as alleged in the libel, you cannot find against
2546 the claimant or condemn the flour in question under that charge of the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"11. That the burden is upon the prosecution to prove the truth of the charge in the libel, that by the treatment of the flour in question by the said Alsop Process it has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, which may render said flour injurious to health.

And in this connection you are further instructed that it is incumbent upon the Government to prove that any such added poisonous or other added deleterious ingredients, if any contained in said flour, are of such a character and contained in the flour seized in such quantities, conditions and amounts as may render said flour injurious to health, and unless you find that all of such facts are so proven you cannot find against the claimant or condemn the flour in question under that charge in the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"12. That the burden is upon the prosecution to prove the allegations in the libel that the flour in question was
2547 sold under a distinctive name of another article than itself and was labeled or branded so as to deceive or mislead the purchaser, and that the packages or sacks containing the flour in question, and the labels thereon, bear a statement, design or device regarding the ingredients or substance contained therein, which are false or misleading. And unless you find the truth of such allegations have been so proven you cannot find against the claimant or condemn the flour in question under this charge of the libel, and if you fail to so find your verdict upon such count or charge in the libel must be in favor of the claimant or the defendant."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"13. "If unbleached flour or flour that is naturally aged contains nitrites or nitrite reacting material, and that such nitrites or nitrite reacting material are naturally present in such flour in practically the same manner as in the flour seized, then the flour seized cannot be condemned and your verdict on the charge relating to added poisonous or other added deleterious ingredients must be for the claimant or defendant."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"14. The law exempts from its operation poisonous or deleterious ingredients occurring naturally in food products, including flour, and if the jury believe that the nitrites or nitrite reacting material is a substance normally and naturally occurring in usual and ordinary food products in
2548 amounts the same as or greater than is present in the flour seized, then such nitrites or nitrite reacting material in the seized flour are not poisonous or deleterious within the meaning of the law, and the flour seized may not be condemned."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"15. If nitrites or nitrite reacting material are usually and ordinarily imparted naturally to the usual and ordinary food products which are continuously used for food consumption without injury to health, then the adding in lesser or no greater amounts of such nitrites or nitrite reacting material by harmless methods to other food products, including flour, is not adding poisonous or other added deleterious ingredients to such food products within the meaning of the law."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the court to instruct the jury as follows:

"16. The law does not prohibit the adding of nitrites or nitrite reacting material to flour, and a jury cannot find for the Government or against the claimant, even if it be shown that nitrites or nitrite reacting material was added to the flour in question, unless they believe from a preponderance of the evidence that such addition, if any, rendered said flour injurious to the health of those who might consume the bread or other foods made from said flour."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

Whereupon the claimant and defendant requested the
2549 court to instruct the jury as follows:

"17. Flour is not eaten in the raw state and if the nitrites or nitrite reacting material present in flour bleached by this Alsop Process is substantially eliminated or greatly reduced during the process of bread making or other process of preparing flour for consumption, the jury may take this fact into consideration in determining as to whether or not the flour contains any substance which may render it injurious to health."

Which instruction the court refused to give, and the claimant and defendant then and there and at the time excepted to the ruling of the court, which exceptions were allowed.

After arguments by counsel for the respective parties the court charged the jury as follows:

2550 In the District Court of the United States, Western District of Missouri, Western Division.

United States of America
No. 285. vs.

Six Hundred and Twenty-five (625) Sacks of Flour.
Lexington Mill and Elevator Company, Claimant.

The Charge to the Jury by the Court, Smith McPherson, Judge.

April 9th, 1910, Arba S. Van Valkenburgh, the then United States Attorney for this Judicial District, in his official capacity as such officer filed with the clerk of this court a pleading designated by law as a libel. Later on, to-wit, May 19th, 1910, Mr. Van Valkenburgh as such officer as aforesaid filed an amended libel in the name of the United States of America, which in effect charged that the said claimant, the Lexington Mill and Elevator Company, April 1st, 1910, sold and shipped from Lexington, in the State of Nebraska, to a grocer by the name of B. O. Terry, at and of Castle, in Sullivan County, Missouri, a shipment of flour containing six hundred and twenty-five (625) sacks of flour of forty-eight pounds of flour to the sack. The said libel charges the route of shipment, namely, over two or more connecting railroads between the two said points. The said Terry buying said flour and receiving said shipment for the purpose of retailing said flour to consumers at the said town of Castle and to his customers in the vicinity thereof, and for said purposes the said Lexington Mill and Elevator Company made said shipment.

2551 It is further charged in the said libel, that is to say, that the flour in question was treated by a process for bleaching flour known as the Alsop Process, which process consists of the generation by means of electricity of nitrogen peroxide gas which is mixed with atmospheric air, and the mixture brought into contact with the flour in a state of agitation, and that the flour was thereby caused to be adulterated in certain particulars, namely:

a. In that substances known as nitrites or nitrite-reacting material has been mixed and packed with the flour so as to reduce and lower and injuriously affect its quality and strength in these respects among others, to-wit: that the capacity of the said flour to change and improve as it would have changed and improved if aged by natural processes has been destroyed: That by direct action the elasticity of the gluten has been lessened and impaired so as to injuriously affect the bread-making qualities of the flour; That other constituents

of the flour have been injuriously affected so as to reduce, lower and impair its bread-making qualities.

b. In that by the treatment of the flour by the Alsop Process it has been mixed, colored and stained in a manner whereby damage and inferiority is concealed in these respects among others, to-wit: That the inferiority of freshness or newness, an inferiority which is present in flour freshly milled and which manifests itself, among other things, in inferiorities of color, of elasticity of gluten, and of the quality of other ingredients which affect its value for bread-making purposes, is thereby concealed; That said flour has been caused to simulate the appearance of flour which has been properly aged and conditioned by natural processes after being milled; That this treatment by the Alsop Process has concealed the inferiority of said flour and has given it the appearance of a better grade of flour than it really is, and further that the flour was when milled, when bleached, and now is of a grade of flour inferior to a patent flour and inferior to the flour made from the first quality of hard wheat, and that by the Alsop Bleaching Process it has been caused to have the appearance of a Patent flour and of a flour made from the first quality of hard wheat, and that thereby the inferiority of said flour was and is concealed and that in other respects also the inferiority of said flour was and is concealed.

c. In that by the treatment as aforesaid the said flour has been caused to contain added poisonous or other added deleterious ingredients to-wit, nitrites or nitrite-reacting material, which may render said flour injurious to health.

The amended libel further charges that said flour is misbranded in substance as follows:

a. That the bags and sacks containing such flour were labeled as follows:

"L. 48, Lexington Cream XXXXX Fancy Patent. This flour is made from the first quality hard wheat."

That in truth and in fact a patent flour is, and is known and recognized to be, the best grade of flour, and which consists only of that portion of the flour content of the wheat known as the "middlings". But that the flour contained in said sacks is not patent flour, but is a grade and quality of flour inferior to patent flour being a mixture of middlings together with a commercially inferior grade of flour, and a flour which before bleaching was darker in color than a patent flour and inferior in grade, quality and strength to patent flour, and that this mixture was shipped into Missouri labelled under the distinctive name of another article, and was labelled

so as to deceive and mislead the purchaser, in the respect that it purported to be a patent flour whereas in truth and in fact it is not a patent flour.

b. That the label on each sack contained a statement, "This flour is made of first quality hard wheat", whereas in truth and in fact the flour was not made of first quality hard
2553 wheat, but was milled in whole or in part from a grade or grades of wheat inferior to first quality hard wheat, namely, "yellow berry", and other inferior wheat, and was sold under the distinctive name of another article than itself, and that the flour seized purported to be made from the first quality of hard wheat, whereas in truth and in fact it was made in whole or in part of wheat inferior to the first quality hard wheat, namely, "yellow berry", and other inferior wheat and therefore was sold under the distinctive name of another article than itself and was misbranded within the meaning of the Act of Congress.

To this amended libel which contains the government's charge and a statement of its alleged cause of action, the Lexington Mill and Elevator Company, claimant herein, has filed its answer, which in substance and meaning states:

That the Lexington Mill and Elevator Company is interested in the flour seized; that the same was manufactured at its mill in Lexington, Nebraska, and sold to B. O. Terry of Castle, Missouri, and was shipped from Lexington, Nebraska, to Terry at Castle, Missouri, under a guaranty that the same was not adulterated; that the claimant has not been paid for the flour, but that after the seizure, was required to and did furnish Terry other flour in lieu of the flour seized; that if the flour seized be condemned, claimant will suffer loss to the extent of its value, namely, Seven Hundred and Fifty (\$750.00) Dollars; it admits the shipment of the flour by the route alleged in the libel, and that the flour was branded as indicated by an amendment to the amended libel.

It admits that the flour was treated by a process known as the Alsop Process, but denies that the same was adulterated within the meaning of the Act of Congress, and denies that any substance known as nitrites or nitrite-reacting material has been mixed or packed with the flour or any part thereof so as to injuriously reduce or lower its quality or strength in any
2554 respect whatever, and denies that the flour has been mixed, colored or stained in a manner whereby damage or inferiority is concealed in any respect whatsoever, and denies that the same has been treated in any manner whereby the grade or the quality of the flour has been concealed, and denies that the treatment of the flour has given it the

appearance of a better grade of flour than it really is, and denies that any of the flour is inferior to a patent flour, and denies that any of the same was when milled or now is of a grade of flour inferior to a grade of flour made from the first quality of hard wheat, and denies that the quality of said flour or wheat from which it was made was in any manner concealed, and denies that the same or any portion thereof has been caused to contain any added poison or other added deleterious ingredient, which may render said article injurious to health.

It admits and alleges that the flour was labeled as the evidence shows it to have been labeled, but denies that so-called patent flour is known or recognized to be a grade of flour consisting only of that portion of the content of the wheat known as "middlings", and says that it is not true that the flour contained in said sacks is not a patent flour, or that it is of a grade or quality inferior to patent flour, or that it is a mixture of middlings together with a commercially inferior grade of flour, or of a flour which was of a darker color than a patent flour, or inferior in grade, quality or strength to a patent flour, and denies that the flour was mixed and shipped into Missouri and sold under the distinctive name of another article than itself, or that the same was labeled in any manner so as to deceive or mislead the purchaser, or that it did deceive or mislead the purchaser in any respect whatever.

It admits that the sacks were labeled as the evidence shows them to have been labeled, but denies that the flour was whole or in part from grade of soft wheat, or that it was sold under the name of an article different from what it really was, or that it was in any respect misbranded.

2555 It admits that the flour was treated by the Alsop Process and in that connection alleges that the process consists of generating, in rapid succession, a flaming electric discharge in a current of air in proximity to such electric discharge, and in conducting the air, as modified by such discharge, into the presence of the flour as it is being continuously passed through a revolving reel or agitator, but denies that the flour was in any way adulterated, or that by the process any poisonous or other deleterious ingredient have in any manner been added thereto or imparted thereto, or that the flour is in any way injurious to health or contains any added deleterious ingredient, or that the same is adulterated in any manner, or that by such process any damage or inferiority is in any manner concealed, or that the quality or strength of the flour is in any manner reduced or lowered.

To this answer the government by its counsel has filed a reply.

On the issues thus outlined as contained in the amended libel, and the answer and reply this case is to be determined.

By reason of the libel heretofore referred to a writ of seizure was issued by the order of this court commanding the United States Marshal for this District to seize the said shipment of flour and the Marshal still holds the same subject to the further orders of the court herein.

The statute under which this proceeding was brought and the case now being tried is an enactment of the Congress of the United States approved by the then President June 30th, 1906, (four years ago.) This statute as to its validity is challenged by the claimant herein. - But with that question you have no concern other than to observe it, because the court holds that the Congress of the United States with the approval of the President had the power under the Constitution of the United States to enact the statute that was enacted and under which we are proceeding, and the court holds and so directs you that the statute is a valid enactment, and to
2556 be enforced in any and all cases where the evidence and the facts come within the wording of the statute.

This statute is named "The Food and Drugs Act", and is an act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes. It will be observed that the statute deals with drugs, medicines, liquors, and foods. A part of the statute is with reference to drugs, medicines and liquors, and likewise confectionery but with which in this case we are not concerned except as the same has a bearing with reference to foods. That part of the statute with reference to foods reads as follows: "That for the purpose of this act an article shall be deemed to be adulterated in the case of food:

"First: If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength * * * * *

"Fourth: If it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed.

"Fifth: If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health."

The statute further prohibits the misbranding of articles of food and provides in substance as follows:

"That the term "misbranded" as used herein shall apply to articles of food or articles which enter into the composition of food, the package or label of which shall bear any statement regarding such article or the ingredient or substances contained therein which shall be false or misleading in any particular."

Any statement or expression of opinion by the court during the trial of this case with reference to any fact or alleged fact or any criticism by the Court of any witness or party or counsel on either side, are each and all withdrawn, and you will
2557 treat and consider the case as if such statements or criticism by the Court were not made. And I charge you to give no consideration to the same or any part thereof.

You are the sole judges of the facts in this case. Much testimony in this case was given by scientists and experts who testified before you. The testimony of the experts as to their opinion is not binding upon the jury and is merely advisory and may be given such weight by the jury as the jury may deem proper in view of all the facts and circumstances in evidence, or such expert testimony may be wholly disregarded by the jury in arriving at their verdict.

While you are the judges of the facts and of the testimony and what weight shall be given thereto regardless of expressions of opinion by me, it is my belief that I can be of substantial aid to you in stating some fact which in my opinion are so well established by the evidence as that you ought to have but little or no argument with reference thereto, and take the same as established facts.

However, notwithstanding my statements or expressions of opinion with reference to any fact in the case, you are to remember that you are the sole judges of the facts in the case, and of all deductions to be made therefrom.

It is an established fact and concerning which there is no conflict in the testimony that the flour in question in this case was transported from Lexington, Nebraska to Castle, Missouri, in interstate commerce and was subject to seizure for confiscation, if it is adulterated or misbranded in any respect or particular alleged in the amended libel.

It is also an established fact in the opinion of the court that the flour seized and in question was made from wheat of a 1909 crop grown in the State of Nebraska and known by the name of No. 2 Turkey Wheat, and that the wheat was ground at the claimant's mill at Lexington, Nebraska on the night of March 31st, 1910 and shipped the next day to the said Terry at Castle, Missouri, by whom it was received in about seven days.

2558 It is also an established fact in the opinion of the Court that the wheat from which the flour was made contained a percentage of what is called yellow berry wheat. The witness, Mr. Tucker, the head miller of claimant, testified that the yellow berry was about or approximately ten to twenty-five per cent of the entire amount of the entire wheat used to make the flour in question that has been seized in this case, and the testimony of other millers in Nebraska and Kansas shows that the wheat called "yellow berry" is frequently indeed commonly found mixed with turkey wheat as it is grown in those states, and that the percentage of such yellow berry varies frequently running higher than fifty or seventy-five per cent of the turkey wheat produced in various places and communities in said states. And there is evidence to the effect that but a small part, probably about one per cent of the turkey wheat produced, in the various places in these states which are referred to in the testimony, that is wholly free from the yellow berry wheat. And it appears that it is the common practice of millers in Kansas and Nebraska to mill turkey wheat mixed with this yellow berry.

It is admitted that the flour seized in this case was treated by the Alsop Process for the purpose of bleaching and whitening the same; that that process employs a gaseous substance referred to in the testimony as nitrogen-peroxide gas— NO_2 or N_2O_4 .

It appears that nitrogen-peroxide gas is—in concentration—a brownish or yellowish gas heavier than atmospheric air, of offensive odor, corrosive in character, and a poison and deleterious substance, and if taken by a human being in sufficient quantities will produce poisonous action and death.

It appears that when nitrogen-peroxide gas is brought into contact with water or moisture, there is by chemical change produced nitrous acid and nitric acid in equal quantities, and it also appears that each of these acids so produced is a poisonous and deleterious substance which if taken by a human
2559 being in sufficient quantities will produce poisonous action and death.

It appears that the water or moisture content of flour is equal to about ten or twelve per cent of the total weight of the flour, amounting to about five pounds of each of the sacks seized or about twenty pounds in a barrel of flour.

It appears that nitrous acid readily combines chemically with other substances such as are contained in wheat flour and thereby forms nitrites of various kinds, depending upon the character of the substances with which the acid chemically combines.

It appears that such nitrites as may be formed by the introduction of nitrous acid into flour are poisonous and deleterious substances and that if taken by a human being in sufficient quantities, will produce poisonous action and death.

It appears that nitric acid readily combines chemically with other substances such as are contained in wheat flour, and thereby forms nitrates of various kinds depending upon the character of the substances with which the acid combines.

To enable the government to obtain a verdict at your hands in its favor, it is required to furnish such a measure of evidence as to sustain the allegations of the amended libel by a fair preponderance of the evidence. By a fair preponderance of the evidence is meant a greater weight of evidence and it is sufficient if it satisfies your mind that the allegations which it supports are true without regard to which side produces the evidence or the witnesses giving the same. It is not incumbent on the government to show that the allegations of the amended libel in a case like this are true beyond a reasonable doubt. Proofs beyond a reasonable doubt are only exacted in a criminal case, and this is not a criminal case within the meaning of that rule, but it is an action in the nature of a civil action. You are the judges of the weight of the evidence, and of the credibility of the witnesses, and it is for you to say what the truth is.

2560 It is incumbent on the government to prove that the flour seized was adulterated and misbranded in some respect or particular alleged in the libel. But it need not prove that the flour was adulterated or misbranded in all of the respects and particulars alleged. If it appears from the evidence in this case that the flour was adulterated in any respect or particular alleged, then you must find for the government that the same was adulterated, and if it appears in the evidence that the same was misbranded in any respect or particular alleged, then you must find for the government that the same was misbranded. On the other hand, if you find that it was not adulterated in any respect or particular alleged, then you must find against the government on that issue. And if you find that it was not misbranded in any respect or particular alleged, then you must find against the government on that issue.

One of the issues submitted to you is the alleged violation of the first subdivision relating to food in Section Seven of the Act, which in substance declares an article of food to be adulterated if any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

Upon this point the substance of the charges made by the government is, (a) that the capacity of the flour to change and improve as it would have changed and improved if aged by natural processes, has been destroyed by the treatment of the flour by the Alsop process whereby substances known as nitrites or nitrite-reacting material have been mixed and packed with the flour, and, (b), that by direct action of such process the elasticity of the gluten has been lessened and impaired so as to injuriously affect the bread-making qualities of the flour. And, (c), that other constituents of the flour have been by such process injuriously affected so as to reduce, lower, and impair its bread-making quality.

On the first branch of this particular issue it appears 2561 that wheat flour improves by lapse of time and processes of natural aging. I charge you that if the treatment of this flour by the Alsop process for the purpose of bleaching and whitening resulted in any injury to the capacity of the flour to change and improve as it would have changed and improved if aged by natural processes, that your finding must be for the government that the flour is adulterated.

On the second branch of this particular issue, I charge you that if you find from the evidence that by the direct action and as a result of the treatment of this flour by the Alsop Process the elasticity of the gluten has been lessened or impaired so as to injuriously affect the bread-making qualities of the flour, that your finding must be for the government that this flour is adulterated.

On the third point of this particular issue, the government claims that the treatment of this flour by the Alsop Process caused substances known as nitrites or nitrite-reacting material to be mixed and packed with the flour so as to reduce, lower and impair its bread-making qualities, and so as to render the same injurious to health. If you shall find from the evidence that the flour seized was by such treatment so injured your finding must be for the government that this flour was adulterated.

The substance of the charges of the government that this flour is adulterated in violation of the fourth subdivision relating to food of Section Seven of the law in question, is that by the treatment of the same by the Alsop Process the flour has been mixed, colored and stained in a manner whereby damage or inferiority is concealed in these respects, namely, (a), that the said flour has been caused to simulate the appearance of flour that has been naturally aged and conditioned by natural processes after milling. (b), that the treatment by the Alsop Process has concealed inferiority in said flour, and has

2562 given it the appearance of a better grade of flour than it really is. (c), That the flour is of a grade inferior to patent flour and inferior of flour made from the first quality of hard wheat, and that treatment of the same by the Alsop Process has caused it to have the appearance of a patent flour and of a flour made from the first quality of hard wheat.

It appears from the evidence in this case that wheat flour when freshly made is inferior to what that same flour will become by the lapse of time and processes of natural aging and conditioning; that the inferiorities of freshness or newness manifest themselves in inferiority of color, of elasticity of the gluten, and of the quality of other ingredients which affect its value for bread-making purposes; and it further appears that by the lapse of time and aging and conditioning by natural processes wheat flour will improve for a period of time, stated to be from two to four months, or thereabouts; and that such improvement increases the value of the flour and makes it lighter in color; and it further appears that this bleaching process makes the freshly milled wheat flour appear to be like and to simulate the appearance which that same flour will assume after natural aging and conditioning. And it further appears that this flour when seized was not naturally aged or conditioned, but was newly milled flour.

On this branch of this particular issue it is for you to say in the light of all these facts and all the evidence whether or not the inferiority of freshness or newness was concealed by the bleaching process.

On the second branch of this particular issue, I charge you that if treatment by the Alsop Process has given to this flour the appearance of a better grade or quality of flour than it really is, you should find for the government that it is adulterated. And upon the third branch of this particular issue I charge you that if you should find from the evidence that this flour is of a grade of flour inferior to patent flour or is a flour inferior to flour made from the first quality hard
2563 wheat, and that bleaching by the Alsop Process has caused it to have the appearance either of a patent flour—as that term will be explained to you in this charge—or the appearance of a flour made from the first quality of hard wheat, then you must find for the government that this flour is adulterated.

The government charges adulteration of this flour in violation of the fifth subdivision relating to food of the section of the statute under which we are proceeding. The words of

that provision are as follows: "If it (in this case meaning flour) contains any added poisonous or other added deleterious ingredient which may render such article (in this case meaning flour) injurious to health".

The substance of the charge found in the amended libel is that by the treatment of the flour by the Alsop Process it has been caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to-wit: Nitrites, nitrite-reacting material, nitrogen peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances.

It is the claim of the government that if the flour contain any added poisonous or other added deleterious ingredient of a kind or character which may render, (that is, which is capable of rendering) such article injurious to health, it is adulterated, and should be condemned for confiscation.

On the other hand, it is the claim of the claimant that even though the flour contain added poisonous or other added deleterious ingredient, it may not be condemned unless it shall further appear that such added substances are in such quantity that the flour shall be thereby rendered injurious to health.

This statute was enacted for the purpose of benefiting and protecting the consumer, which in this case means those who eat bread and cake and pastry and gravy and other products made from wheat flour. This was the purpose that Congress had in mind when it enacted this statute. And in enforcing this statute in proper cases the fact that it will subject the millers to some expense, or the fact, if it be a fact, that it will enable the millers to market their flour more readily or at a better price, is entitled to no consideration and will receive no weight at your hands.

It will be noted that the act does not say "any added poison", but does say "any added poisonous ingredient". The word "poisonous" as an adjective conveys a descriptive meaning and is used in a qualitative sense, and not in a quantitative sense. That is, it refers to the kind of substances, and not to the quantity of the substance. This idea or meaning is further emphasized and rendered more certain by the qualifying clause "which may render such article injurious to health". It does not say "which does render such article injurious to health", but manifestly it was the purpose of Congress to include in this distinction all ingredients of a poisonous character to which in their essential nature, might be ascribed the tendency to affect health injuriously.

This statute is essentially a remedial one, for the correction of known or supposed abuses with respect to the adulteration of food and other articles of human consumption. It is primarily a statute of prevention. Its meaning is made clear when its purpose is known and borne in mind.

It is not conceivable that the Congress of the United States, when it passed this act, intended that producers and vendors might continue to add poisonous and other injurious substances to food so long as the quantity added was not sufficient to produce observable poisonous or injurious effects upon the health of consumers, nor is it conceivable that Congress intended to require that the government before proceeding to condemnation of an article of food as adulterated must prove that it contains added poisonous or other added deleterious ingredient in such a quantity as would render such article injurious to health. It is known to everyone that there is no method of ascertaining or measuring the effect of the consumption of such substances in food upon the public health or upon the health of any particular individual.

It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances.

The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the government need not prove that this flour or food stuffs made by the use of it would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case.

The flour seized in this case is an article of food within the meaning of the Act of Congress. And if the treatment of the same by the Alsop Process caused it to contain any added poisonous or other added deleterious ingredient of a kind or character which may render the same injurious to health, then it is adulterated and must be condemned.

It is admitted that this flour was treated by the Alsop Process for the purpose of bleaching or whitening, and the evidence establishes that nitrogen—peroxide gas was employed for that purpose and further establishes that that gas, nitrous acid, nitric acid, and nitrites of the kind which may be produced by such treatment are poisonous and deleterious sub-

stances, and that these substances, when taken in sufficient quantities will produce poisonous action or death.

It appears from the evidence in this case that the bleaching process imparts and adds to flour substances referred to in the testimony as nitrites or nitrite-reacting material, and 2566 such substances were imparted to the flour seized in this case by the bleaching process. It further appears from the evidence that such substances so imparted or added to this flour are qualitatively both poisonous and deleterious, that is to say, that these substances are of a poisonous and deleterious character.

It is well known that wheat flour is not eaten raw. There is evidence in this case that tends to show that during the process of making bread nitrites or nitrite-reacting material contained in the flour is lessened and may be eliminated under some circumstances, but it is also well known that wheat flour is used for the making of other articles of food—biscuits, dumplings, pastry, cake, crackers, gravy, and perhaps other articles of food, which may be consumed by all classes of persons, the young, the old, the sick, the well, the weak, and the strong; and I charge you that it is right for you in reaching your verdict to take these facts into consideration together with all the other proven facts and circumstances in the case.

With reference to the issues as to misbranding, the same divides itself under two heads, one with reference to quality of the flour, and the other with reference to kind of wheat from which it was made. The flour is branded as a fancy patent flour and it is also represented by label on each sack that the flour is made of first quality hard wheat.

There is much dispute in the evidence as to the meaning of the phrase "patent flour". Some of the witnesses for the government testified in substance that the phrase had a well defined meaning among millers, bakers and in the flour market generally, and that it means that the flour so called patent flour, is less than the total flour content of the wheat, and includes what is known in the milling process as the purified middlings, but it is not claimed by the government nor any of the witnesses that patent flour is or contains any definite or specific percentage of the total flour content of the 2567 wheat. On the other hand, some of the witnesses for the claimant testified that the phrase "patent flour" has no definite or recognized meaning among millers, bakers, flour dealers or elsewhere, and that flours containing the total flour content of the wheat excepting low grade, sometimes

called "red dog", are labeled and sold in the market as "patent flour".

It is the law that if the phrase "patent flour" has a well known and well understood meaning generally among millers, flour purchasers, bakers, and in the flour markets of the country then such meaning as so understood is to be attributed to that phrase. In other words, patent flour is the kind of flour that it is generally understood to be by millers, bakers, flour purchasers and in the markets generally. You are therefore to determine, first, Has the phrase "patent flour" any well defined and well known meaning? And, second, is the flour seized that kind of flour, namely "patent flour"? If it is, your finding must be against the government on this branch of the case. But if it is not a patent flour as that phrase is understood as heretofore explained, your finding must be for the government upon this branch of the case.

2568 On the second branch of the charge of misbranding contained in the amended libel, the facts appear to be that the flour seized was manufactured by the claimant at its mill from wheat which was raised in the year 1909, in the general vicinity of Lexington, in the State of Nebraska; that the wheat weighed about fifty-nine pounds to the bushel, and was of a variety known as No. 2 Turkey wheat, in which there was a quantity of wheat known as yellow berry or as sometimes called by millers, "yellow belly", amounting to from ten to twenty-five per cent of the total wheat used to make this flour. The wheat known as yellow berry is commonly found in Nebraska and Kansas growing with turkey wheat. It differs in color and quality from pure turkey wheat, and is considered by the millers less desirable and is of less value commercially.

The words upon each sack, "This flour is made of first quality hard wheat," is in effect a representation that the flour seized was made from the best hard wheat.

Was the wheat from which this flour was made as described by the miller who made it, Mr. Tucker, the best hard wheat?

2569 [On the second branch of the charge of misbranding contained in the amended libel, the facts appear to be that the flour seized was manufactured by the claimant at its mill from wheat which was raised in the year 1909 in the general vicinity of Lexington, in the State of Nebraska; that the wheat weighed about fifty-nine pounds to the bushel, and was of a variety known as No. 2 Turkey wheat, in which there was a quantity of wheat known as yellow berry or as sometimes called by millers "yellow belly", amounting to from ten to twenty-

five per cent of the total wheat used to make this flour. The wheat known as yellow berry is commonly found in Nebraska and Kansas growing with turkey wheat. It differs in color and quality from pure turkey wheat, and is considered by the millers less desirable and is of less value commercially.

The words upon each sack, "this flour is made of first quality hard wheat", is in effect a representation that the flour was made from first quality hard wheat.]

You are to determine whether or not that representation is true. And in so doing you will not be controlled by the fact, if it be a fact, that the wheat used was the best grown in the district where claimant procured his supply for milling, but you have a right to consider the same in comparison with other wheats grown in different places and parts of the country as disclosed by the evidence in the case, and in the light of all of the evidence on this question say whether or not the wheat used was in truth and in fact first quality hard wheat.

2570 I am now about committing this case to you gentlemen for decision. We have been engaged in this trial continuously for five weeks of time, during most of which time the weather has been oppressively and well-nigh unbearably hot. Your work, as well as that of all of counsel in the case and my own work, has been exceedingly laborious and fatiguing. I commend you for the patience you have given to the testimony and to the argument of counsel. I have the right to insist and do insist that you now take this case to your room and give both the facts in the case and the law as I have given you in charge your best and most deliberate judgment. In view of statements that have been made by counsel during the progress of this case, you will not consider and you must put to one side all questions of who the counsel are, or where they are from. This is not a contest between states or sections of the country. Ours is but one country, and this enactment by Congress is for the entire country. The fact that the Patent Office at Washington issued a patent for the Alsop Process has nothing to do with the question of branding correctly, or misbranding of flour. The fact that the Patent Office issued a patent for the Alsop Process does not warrant nor authorize the adulteration of flour as made by the Alsop Process, if it is adulterated. All these things must be put to one side, and your verdict must be determined in accordance with the law and facts in the case. It is of no importance to you, nor is it of importance to me, who will be pleased or displeased in this case whether of counsel or of the parties, or of any other person. The only question is, what is the right, and what the wrong of this case?

Your verdict must recite whether this flour was misbranded or not, and your verdict must further recite whether this flour was adulterated or not, within the meaning of what I have heretofore said to you. And that there may be no uncertainty as to your verdicts, I hand you two pairs of verdicts. Your foreman will sign the one of each pair and bring the same into court for record, the other of each pair having been destroyed by you. And you will make no other findings than these two. All matters bearing on these two forms you will give due weight thereto, and all matters not having a bearing thereon, you will utterly disregard.

You will observe that one [—] these pairs of verdicts I now hand you is with reference to misbranding. If the flour seized was misbranded in any particular as alleged in the amended libel, your foreman will sign the one thus reciting, but if not misbranded in any particular as alleged in the amended libel, your foreman will sign the other. You will also observe that I hand you a pair of verdicts with reference to adulteration. If the flour seized was adulterated in any one of the ways or methods as alleged in the amended libel, your foreman will sign the one reciting the adulteration; if you do not so find, your foreman will sign the other. You will now take the case.

At the conclusion of the foregoing charge and before the jury retired, the Court called the attention of the jury to the fact that they would take with them the exhibits and the charge of the Court, and the Court, in open court, handed to one of the jurors sitting nearby the bench the said charge. This was done in open court with counsel on both sides all present, except Mr. Smith, who had retired some days before on account of sickness. No objection was made to handing the charge of the Court to the jury, and no exception was taken with reference thereto, and the first objection that the Court has heard with reference to the handing of the charge to the jury was on November 11, 1910, when the motion for new trial was being considered. The charge of the Court was wholly in writing, reduced to typewriting, with a number of manifold copies, the Court retaining the original and handing it to the jury as hereinbefore stated. When the jury was being charged counsel on each side had a manifold copy of the charge, and there was no instruction or charge given to the jury, except that which was reduced to writing, which was read just as it was reduced to writing without comment, change or variation by oral remark.

At the close of the foregoing charge in open court before the jury retired the defendant took the following exceptions to the charge of the Court:

The claimant excepts to that part of the charge of the court to the jury which is as follows:

1. "The statute under which this proceeding was brought and the case now being tried is an enactment of the Congress of the United States approved by the then President June 30th, 1906 (four years ago.) This statute as to its validity is challenged by the claimant herein. But with that question you have no concern other than to observe it, because the Court holds that the Congress of the United States with the approval of the President had the power under the Constitution of the United States to enact the statute that was enacted and under which we are proceeding, and the Court holds and so directs you that the statute is a valid enactment, and to be enforced in any and all cases where the evidence and the facts come within the wording of the statute."

By the Court. "Exceptions allowed."

The claimant also objects and excepts to that part of the charge given by the Court to the jury which recites as follows:

2. "It will be observed that the statute deals with 2574 drugs, medicines, liquors and foods. A part of the statute is with reference to drugs, medicines and liquors, and likewise confectionery but with which in this case we are not concerned except as the same has a bearing with reference to foods."

By the Court. "Exceptions allowed."

The claimant further objects and excepts to that part of the charge given by the Court to the jury which recites as follows:

3. "While you are the sole judges of the facts and of the testimony, and what weight shall be given thereto regardless of expressions of opinion by me, it is my belief that I can be of substantial aid to you in stating some facts which in my opinion are so well established by the evidence as that you ought to have but little or no argument with reference thereto, and take the same as established facts."

By the Court. "Exceptions allowed."

And in the same connection the claimant objects and excepts to that part of the charge given by the Court to the jury which is as follows:

4. "It is also an established fact in the opinion of the Court that the flour seized and in question was made from wheat of a 1909 crop grown in the State of Nebraska and known by the name of No. 2 Turkey Wheat, and that the wheat was ground at the claimant's mill at Lexington, Nebraska on the

night of March 31st, 1910, and shipped the next day to the said Terry at Castle, Missouri, by whom it was received in about seven days.

By the Court. "Exceptions allowed."

And in the same connection claimant objects and excepts to the charge given by the Court to the jury which recites as follows:

5. "It is also an established fact in the opinion of the Court that the wheat from which the flour was made contained a percentage of what is called yellow berry wheat. The witness, Mr. Tucker, the head miller of claimant, testified that the yellow berry was about or approximately ten to twenty-five per cent, of the entire amount of the entire wheat used to make the flour in question that has been seized in this case, and the testimony of other millers in Nebraska and Kansas shows that the wheat called "yellow berry" is frequently, indeed commonly, found mixed with turkey wheat as it is grown in those states, and that the percentage of such yellow berry varies frequently running higher than fifty or seventy-five per cent of the turkey wheat produced in various places and communities in said states."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge given by the court to the jury which recites as follows:

6. "It appears that nitrogen-peroxide gas is—in concentration—a brownish or yellowish gas heavier than atmospheric air, of offensive odor, corrosive in character, and a poison and deleterious substance, and if taken by a human being in sufficient quantities will produce poisonous action and death."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which recites as follows:

7. "It appears that when nitrogen-peroxide gas is brought into contact with water or moisture, there is by chemical change produced nitrous acid and nitric acid in equal quantities, and it also appears that each of these acids so produced is a poisonous and deleterious substance which if taken by a human being in sufficient quantities will produce poisonous action and death."

By the Court: "Exceptions allowed."

And the claimant further objects and excepts to that part of the charge of the court to the jury which recites as follows:

8. "It appears that nitrous acid readily combines chemically with other substances such as are contained in wheat flour and thereby forms nitrites of various kinds, depending upon the character of the substances with which the acid chemically combines."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge given by the court to the jury which is as follows:

9. "It appears that such nitrites as may be formed by the introduction of nitrous acid into flour are poisonous and deleterious substances and that if taken by a human being in sufficient quantities, will produce poisonous action and death."

By the Court: "Exceptions allowed."

And the claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

10. "It appears that nitric acid readily combines chemically with other substances such as are contained in wheat flour, and thereby forms nitrates of various kinds depending upon the character of the substances with which the acid combines."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

11. "It is not incumbent on the government to show that the allegations of the amended libel in a case like this are true beyond a reasonable doubt. Proofs beyond a reasonable doubt are only exacted in a criminal case, and this is not a criminal case within the meaning of that rule, but it is an action in the nature of a civil action."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

12. "It is incumbent on the government to prove that the flour seized was adulterated and misbranded in some respect or particular alleged in the libel. But it need not prove that the flour was adulterated or misbranded in all of the respects and particulars alleged. If it appears from the evidence in this case that the flour was adulterated in any respect or particular alleged, then you must find for the government that the same was adulterated, and if it appears from the evidence that the same was misbranded in any respect or particular al-

leged, then you must find for the government that the same was misbranded."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

13. "I charge you that if the treatment of this flour by the Alsop process for the purpose of bleaching and whitening resulted in any injury to the capacity of the flour to change and improve as it would have changed and improved if aged by natural processes, that your finding must be for the government that the flour is adulterated."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

14. "On the second branch of this particular issue, I charge you that if you find from the evidence that by the direct action and as a result of the treatment of this flour by the Alsop process the elasticity of the gluten has been lessened or impaired so as to injuriously affect the bread-making qualities of the flour, that your finding must be for the government that this flour is adulterated."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

15. "On the third point of this particular issue, the government claims that the treatment of this flour by the Alsop Process caused substances known as nitrites or nitrite-reacting material to be mixed and packed with the flour so as to reduce, lower and impair its bread-making qualities, and so as to render the same injurious to health. If you shall find from the evidence that the flour seized by such treatment so injured, your findings must be for the government that this flour was adulterated."

By the Court: "Exceptions allowed."

The claimant farther objects and excepts to that part of the charge of the court to the jury which is as follows:

16. "And it further appears that by the lapse of time and aging and conditioning by natural processes wheat flour will improve for a period of time, stated to be from two to four months, or thereabouts, and that such improvement increases the value of the flour and makes it lighter in color; and it further appears that this bleaching process makes the freshly

milled wheat flour appear to be like and to simulate the appearance which that same flour will assume after natural aging and conditioning. And it further appears that this
 2578 flour when seized was not naturally aged or conditioned, but was newly milled flour."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

17. "On the second branch of this particular issue, I charge you that if the treatment by the Alsop Process has given to this flour the appearance of a better grade or quality of flour than it really is, you should find for the government that it is adulterated."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

18. "And upon the third branch of this particular issue, I charge you that if you should find from the evidence that this flour is of a grade of flour inferior to patent flour or is a flour inferior to flour made from the first quality hard wheat, and that bleaching by the Alsop Process has caused it to have the appearance either of a patent flour—as that term will be explained to you in this charge—or the appearance of a flour made from the first quality of hard wheat, then you must find for the government that this flour is adulterated."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

19. "The substance of the charge found in the amended libel is that by the treatment of the flour by the Alsop Process it has been caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to-wit: nitrites, nitrite-reacting material, nitrogen peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

20. "On the other hand, it is the claim of the claimant that even though the flour contain added poisonous or other added deleterious ingredient, it may not be condemned unless

2579 it shall further appear that such added substances are in such quantity that the flour shall be thereby rendered injurious to health."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

21. "And in enforcing the statute in proper cases the fact that it will subject the millers to some expense, or the fact, if it be a fact, that it will enable the millers to market their flour more readily or at a better price, is entitled to no consideration and will receive no weight at your hands."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

22. "The word 'poisonous' as an adjective conveys a descriptive meaning and is used in a qualitative sense, and not in a quantitative sense. That is, it refers to the kind of substance, and not to the quantity of the substance. This idea or meaning is further emphasized and rendered more certain by the qualifying clause 'which may render such article injurious to health.' It does not say 'which does render such article injurious to health,' but manifestly it was the purpose of Congress to include in this distinction all ingredients of a poisonous character to which in their essential nature, might be ascribed the tendency to affect health injuriously."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

23. "It is not conceivable that the Congress of the United States, when it passed this act, intended that producers and vendors might continue to add poisonous and other injurious substances to food so long as the quantity added was not sufficient to produce observable poisonous or injurious effects upon the health of consumers, nor is it conceivable that Congress intended to require that the government before proceeding to condemnation of an article of food as adulterated must prove that it contains added poisonous or other added deleterious ingredients in such a quantity as would render such article injurious to health. It is known to every one that there

2580 is no method of ascertaining or measuring the effect of the consumption of such substances in food upon the public health or upon the health of any particular individual."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

24. "It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

25. "The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the government need not prove that this flour or food stuffs made by the use of it would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

26. "The flour seized in this case is an article of food within the meaning of the Act of Congress."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

27. "It is admitted that this flour was treated by the Alsop Process for the purpose of bleaching or whitening, and the evidence establishes that nitrogen-peroxide gas was employed for that purpose and further establishes that that gas, nitrous acid, nitric acid, and nitrites of the kind which may be produced by such treatment are poisonous and deleterious substances, and that these substances when taken in sufficient quantities will produce poisonous action or death."

2581 By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

28. "It appears from the evidence in this case that the bleaching process imparts and adds to flour substances referred to in the testimony as nitrites or nitrite-reacting material, and

such substances were imparted to the flour seized in that case by the bleaching process. It further appears from the evidence that such substances so imparted or added to this flour are qualitatively both poisonous and deleterious, that is to say, that these substances are of a poisonous and deleterious character."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

29. "It is well known that wheat flour is not eaten raw. There is evidence in this case that tends to show that during the process of making bread nitrites or nitrite-reacting material contained in the flour is lessened and may be eliminated under some circumstances, but it is also well known that wheat flour is used for the making of other articles of food—biscuits, dumplings, pastry, cake, crackers, gravy, and perhaps other articles of food, which may be consumed by all classes of persons, the young, the old, the sick, the well, the weak, and the strong; and I charge you that it is right for you in reaching your verdict to take these facts into consideration together with all the other proven facts and circumstances in the case."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

30. "With reference to the issue as to misbranding, the same divides itself under two heads, one with reference to quality of the flour, and the other with reference to kind of wheat from which it was made. This flour is branded as a fancy patent flour and it is also represented by label on each sack that the flour is made of first quality hard wheat."

By the Court: "Exceptions allowed."

2582 The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

31. "It is the law that if the phrase 'patent flour' has a well known and well understood meaning generally among millers flour purchasers, bakers, and in the flour markets of the country, then such meaning as so understood is to be attributed to that phrase. In other words, patent flour is the kind of flour that it is generally understood to be by millers, bakers, flour purchasers and in the markets generally."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

32. "On the second branch of the charge of misbranding contained in the amended libel, the facts appear to be that the flour seized was manufactured by the claimant at its mill from wheat which was raised in the year 1909 in the general vicinity of Lexington, in the State of Nebraska; that the wheat weighed about fifty-nine pounds to the bushel, and was of a variety known as No. 2 Turkey wheat, in which there was a quantity of wheat known as yellow berry or as sometimes called by millers, 'yellow belly', amounting to from ten to twenty-five per cent of the total wheat used to make this flour."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

33. "The wheat known as yellow berry is commonly found in Nebraska and Kansas growing with turkey wheat. It differs in color and quality from pure turkey wheat, and is considered by the millers less desirable and is of less value commercially."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

34. "The words upon each sack, 'This flour is made of first quality hard wheat', is in effect a representation that the flour seized was made from the best hard wheat."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

2583 35. "You are to determine whether or not that representation is true. And in so doing you will not be controlled by the facts, if it be a fact, that the wheat used was the best grown in the district where claimant procured his supply for milling, but you have a right to consider the same in comparison with other wheats grown in different places and parts of the country as disclosed by the evidence in the case, and in the light of all of the evidence on this question say whether or not the wheat used was in truth and in fact first quality hard wheat."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

36. "In view of statements that have been made by counsel during the progress of this case, you will not consider and you must put to one side all questions of who the counsel are, or where they are from. This is not a contest between states or sections of the country."

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

37. "The fact that the Patent office at Washington, issued a patent for the Alsop Process has nothing to do with the question of branding correctly, or misbranding of flour. The fact that the Patent Office issued a patent for the Alsop Process does not warrant nor authorize the adulteration of flour as made by the Alsop Process, if it is adulterated. All these things must be put to one side, and your verdict must be determined in accordance with the law and facts in the case. It is of no importance to you, nor is it of importance to me, who will be pleased or displeased in this case, whether of counsel, or of the parties, or of any other person. The only question is, What is the right, and what the wrong of this case?"

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

38. "Your verdict must recite whether this flour was misbranded or not, and your verdict must further recite whether this flour was adulterated or not, within the meaning of what I have heretofore said to you."

2584 By the Court: "Exceptions allowed."

39. And the claimant further objects and excepts to that part of the charge of the court to the jury in which two verdicts or findings of facts are required.

By the Court: "Exceptions allowed."

The claimant further objects and excepts to that part of the charge of the court to the jury which is as follows:

40. "You will make no other findings than these two. All matters bearing on these two forms you will give due weight thereto, and all matters not having a bearing thereon, you will utterly disregard."

By the Court: "Exceptions allowed."

41. The claimant further objects and excepts to the ruling of the court in denying the requests for charges heretofore made and filed.

By the Court: "Exceptions allowed."

42. The claimant objects and excepts to the charge of the court as a whole in not submitting all of the issues in the case to the jury and in not submitting verdicts or forms of verdicts on findings on the flour charges in the libel.

To which the court responds that no written requests were made other than as set forth in the seventeen requests presented to the court in writing.

43. The claimant further objects and excepts to the charge as not giving to the jury a definition of poison.

To which the court responds that no requests were made other than the seventeen requests referred to.

44. The claimant further objects and excepts to the charge as a whole because it is based or founded upon the wrong theory of the case and of the law of the case and of the evidence in the case.

By the Court: "Exceptions allowed."

Mr. Lyons: The government desires to renew its motion of the other day requesting the Court to direct the jury peremptorily to return a verdict in favor of the government on account of the flour seized in this case being misbranded
2585 as charged in the libel.

And the Government further desires to renew its motion to the court requesting the court to direct the jury peremptorily to return a verdict for the government in this case to the effect that the flour seized in this case was adulterated as charged in the libel, and excepts to the ruling of the court in refusing to grant the requests of the government.

2586 Thereupon, and on the 5th day of July, 1910, the jury retired to consider of its verdict, and thereafter, on the 6th day of July, 1910, returned into court with the following verdicts, namely:

"We, the jury, find that the flour seized in this case is adulterated.

July 6, 1910.

JOHN W. THOMASON,
Foreman."

"We, the jury, find that the flour seized in this case is misbranded.

July 6, 1910.

JOHN W. THOMASON,
Foreman."

To which action of the jury in returning said verdicts, and to the action and ruling of the court in receiving and filing the same, the claimant and defendant through its attorneys duly objected and excepted at the time, which exceptions were allowed.

Thereupon the court, over the objections and exceptions of the claimant and defendant herein, entered the following judgment in said cause.

"United States of America

No. 285. v.

Six Hundred and Twenty-five (625) Sacks of Flour.

On this day again comes the parties to this cause, Leslie J. Lyons, United States Attorney, and Pierce Butler, Esq., Special Assistant Attorney General, on behalf of the United States, also comes the Lexington Mill and Elevator Company, defendant herein by its counsel, Bruce S. Elliott, Judge A. E. Helm, and Judge E. L. Scarritt, and the jury sworn to try this case as on yesterday, and thereupon the jury came 2587 into court under the charge of the sworn bailiff and returned two verdicts signed by their foreman, which said verdicts are in words and figures following, to-wit:

In the District Court of the United States, Western District of Missouri, Western Division.

United States of America

No. 285. vs.

Six hundred Twenty-five (625) Sacks of Flour. Lexington Mill and Elevator Company, Claimant.

Verdict.

We, the jury, find that the flour seized in this case is adulterated.

July 6, 1910.

JOHN W. THOMASON,
Foreman.

In the District Court of the United States, Western District of Missouri, Western Division.

United States of America

No. 285. vs.

Six hundred Twenty-five (625) Sacks of Flour. Lexington
Mill and Elevator Company, Claimant.

Verdict.

We, the jury, find that the flour seized in this case is
misbranded.

July 6, 1910.

JOHN W. THOMASON,
Foreman.

and announced that the same are the verdicts of the
jury.

2588 Thereupon, the Court orders said two verdicts and each
of them filed and recorded on the records of this court,
which is accordingly done, to which the said Claimant, the
Lexington Mill and Elevator Company at the time in open
Court objects and excepts.

Thereupon, on motion of the United States Attorney, it
is ordered, considered and adjudged that the Lexington Mill
and Elevator Company pay the taxable costs herein made to be
taxed by the Clerk, for which a writ of execution will issue, to
which ruling, order and judgment the said Claimant at the
time in open court excepts.

It is further considered, ordered and adjudged that the
flour seized herein and now in the possession of the United
States Marshal for this District, be and the same is hereby con-
demned and confiscated to the United States of America, as
being food adulterated and misbranded within the meaning of
the Act of Congress approved June 30, 1906, and that all the
same be destroyed by the United States Marshal.

From the foregoing as to the confiscation and destruction
is excepted the flour heretofore released by order of the
court, to each, all and every of the foregoing orders, directions,
judgment, and findings, the Claimant, the Lexington Mill
and Elevator Company in open court excepts.

And said Claimant, the Lexington Mill and Elevator Com-
pany is given twenty (20) days from this date to file a motion
for a new trial, or a motion to modify any or all of the for-
going, and a motion to vacate or set aside any or all of the fore-
going, and by the word motion is meant to include any ex-
ceptions or objections to any of the foregoing, or all of the
same; and also the right and privileges is hereby given to
said Claimant to serve and file Bill of Exceptions or notice of

appeal from any or all of said orders within the time allowed by statute and the rules of Court. No process or writ shall issue until the motion for new trial is ruled on, if filed within said twenty (20) days.

SMITH McPHERSON,
Judge."

And thereafter, on the 22 day of July, 1910, comes the claimant and defendant and by leave of court first had and obtained therefor files its motions for a new trial and for arrest of judgment, which motions for a new trial and in arrest of judgment are in words and figures as follows, to-wit:

2590 In the United States District Court for the Western Division of the Western district of Missouri.

United States of America
No. 285. vs.

Six Hundred and Twenty-Five (625) Sacks of Flour, Lexington Mill & Elevator Company, Claimant.

Claimant's Petition and Motion for a New Trial.

Now on this day comes the claimant, Lexington Mill & Elevator Company, and by leave of court first had and obtained therefor, files this its petition and motion for a new trial herein and prays the court to grant said claimant a new trial of this cause for the following reasons, to-wit:

1. Because the court was without jurisdiction to try this cause.

2. Because the Food and Drugs Act of June 30, 1906, is wholly invalid, unconstitutional and void in that it deprives the claimant of its property without due process of law, and is in violation of Article 1, Section 8, Paragraph 3 of the Constitution of the United States, giving to Congress the right to regulate commerce among the several states, and is also in violation of Article 10 of the Amendments to the Constitution of the United States, which provides that:

"Powers not delegated to the United States by the Constitution nor prohibited by it to the states are reserved to the states respectively, or to the people";

and also in violation of Article 9 of the Amendments to the Constitution of the United States which provides that:

"The enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people."

2591 3. Because the said act known as the Food & Drugs Act of June 30, 1906, is wholly illegal, unconstitutional and void for the reason that said act is uncertain and indefinite in that said law does not define any standard of grade, quality or purity, and in this regard delegates legislative functions to the judicial department of the government and to the courts clothed with jurisdiction of cases of a civil or criminal nature brought under said law in violation of Article 1 of the Constitution of the United States, which provides that:

"The legislative powers herein granted shall be vested in a congress of the United States which shall consist of the senate and house of representatives."

4. Because said Food & Drugs Act of June 30, 1906, is wholly illegal and unconstitutional and void in that it deprives this claimant of the exclusive right to the use and enjoyment of a right of property conferred upon it by the government of the United States contrary to and in violation of Clause 8 in Section 8 of Article 1 of the Constitution of the United States which provides that:

"The Congress shall have power to promote the progress of science and useful arts by securing for limited times to authors and inventors (and their grantees) the exclusive right to their respective writings and discoveries."

5. Because the action of the court, and the officers of the court, in seizing and condemning the flour of the claimant was and is contrary to and in violation of the rights of the claimant as secured to it by the provisions of article 4 of the Amendments of the Constitution of the United States which is as follows:

"The right of the people to be secure in their persons, houses, papers and effects against unreasonable searches and seizures shall not be violated, and no warrant shall issue but upon probable cause supported by oath or affirmation and particularly describing the place to be searched and the persons or things to be seized."

6. Because the seizure of said flour by the court and its officers was and is violative of the rights of the claimant
2592 herein as secured to it by the provisions of Article 5 of the Amendments of the Constitution of the United States, which provides that:

"No person shall be deprived of life, liberty or property without due process of law, nor shall private property be taken for public use without just compensation."

7. Because the Food & Drugs Act of June 30, 1906, is unreasonable, oppressive, confiscatory and void, and contrary in its provisions to the principles of a free government and to free people, as enunciated in our Declaration of Rights, in that it attempts to deprive a citizen of property that is harmless and wholesome, and in that it deprives a citizen of the pursuit of happiness and the lawful fruits of his own industry and labor.

8. Because the Food & Drugs Act of June 30, 1906, as construed by the court in this case is unreasonable, oppressive, confiscatory and absolutely void, and contrary in its provisions to the principles of a free government and a free people, as enunciated in our Declaration of Rights, in that it deprives this claimant of its property which, it is conceded in the charge of the court to the jury, is absolutely harmless and wholesome, and in that it deprives this claimant of the right to contract with reference to its own property and to enjoy the lawful fruits of its own capital and labor.

9. Because the Food & Drugs Act of June 30, 1906, is unreasonable, oppressive, confiscatory and void in that by its provisions, as construed by this court, it deprives a citizen of his property in the flour seized and the bread made therefrom, by reason of the claim that said flour and bread contains small or infinitesimal quantities of nitrites or nitrite reacting material, which nitrites or nitrite reacting material is also found in flour and bread manufactured by natural processes, and which flour and bread are, and have been for ages, of universal use for consumption by the human race, and which flour and bread so used in either event are harmless and wholesome.

2593 10. Because the verdict and judgment in this case are unreasonable, oppressive, and confiscatory in that by reason thereof the claimant is deprived of its property which is harmless and wholesome, without compensation, and without any finding or judgment that it is a nuisance or in any way injurious to public health, or that it is in any way affected by nitrites or nitrite reacting material different from flour manufactured by former processes or cured by nature, which has been used for food by the human race since flour was first manufactured.

11. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect that:

"A substance known as nitrites or nitrite reacting material has been mixed and packed with the said flour so as to reduce and lower and injuriously effect its quality and strength, in these respects, among others, namely: that the capacity of the said flour to change and improve, as it would have chang-

ed and improved if aged and conditioned by natural processes, has been destroyed; that by direct action the elasticity of the gluten has been lessened and impaired, so as to injuriously affect the bread-making qualities of the flour; that by direct action other ingredients of the said flour have been injuriously affected, so as to reduce, lower and impair its bread-making qualities."

12. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect that by the treatment of the flour by the Alsop Process,

"The said flour has been mixed, colored and stained in a manner whereby damage and inferiority is concealed in these respects, among others, namely: that the inferiority of freshness or newness, an inferiority which is present in flour made from new wheat or in flour freshly milled from wheat that is either old or new, and an inferiority which manifests itself, among other things, in inferiorities of color, of elasticity of gluten, and of the quality of other ingredients which affect its value for bread-making purposes is thereby concealed; and that said flour has been caused to simulate the appearance of flour made from wheat which has been properly aged and conditioned by natural processes and of flour which has been properly aged and conditioned by natural processes, after being milled from wheat that is either old or new; and this treatment by the Alsop Process, as aforesaid, has concealed the inferiority of said flour, and has given it the appearance of a better grade of flour than it really is."

2594 13. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect:

"That the flour contained in said six hundred and twenty-five (625) sacks, and treated by the Alsop Process as aforesaid, was when milled, and now is, of a grade of flour inferior to a patent flour, and was when milled, and now is, of a grade of flour inferior to the grade known as finest quality of hard wheat; and that the said flour, inferior in these respects, has been caused to have the appearance of a patent flour and of flour made from the finest quality of hard wheat, and thereby the inferiority contained in said flour was and is concealed, and in other respects also the inferiority of said flour was and is concealed."

14. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect:

"That by the treatment (Alsop) as aforesaid the said flour has been caused to contain added poisonous or other added

deleterious ingredients, to-wit, nitrites or nitrite reacting material, which may render said flour injurious to the health."

15. Because there is no substantial evidence in this case to support the allegation of the libel herein to the effect that the flour in question was misbranded within the meaning and intent of the Act of Congress of June 30, 1906.

16. Because the court erred in handing to the jury two verdicts in this case.

17. Because the court erred in instructing the jury to find the issues in accordance with two verdicts in this case.

18. Because the court erred in not charging and instructing the jury to find on each of the four charges or counts alleged in the libel herein.

19. Because the verdicts are inconsistent with each other.

20. Because the court erred in charging the jury preemptorily to find for the government.

21. Because the court erred in finding the facts in his charge to the jury in favor of the government, and in submitting the case under said charge and finding to the jury at all.

2595 22. Because the court erred in entering judgment upon the verdicts as returned by the jury.

23. Because the court erred in taxing the costs herein against the claimant, and in ordering execution therefor.

24. Because the court erred in entering judgment of condemnation or confiscation against the flour seized and ordering the same destroyed by the United States Marshal.

26. Because the court erred in permitting the jury while it was deliberating upon its verdict to have a copy of the charge of the court to the jury, which was in writing, and to consult and argue and interpret and construe the same for itself, all of which was without the knowledge or consent of the claimant or any of its attorneys.

27. Because of the misconduct of the jury in obtaining a copy of the charge of the court to the jury, which was in writing, and using and arguing and interpreting and construing the same while in session deliberating upon the verdict in this case, all of which was without the knowledge or consent of the claimant or any of its attorneys.

28. Because the jury in this case had while it was deliberating upon a verdict herein a copy of the charge of the court, which was in writing, and did use, argue, interpret and con-

strue the same for itself without the presence or aid of the court, and without the knowledge of the claimant or any of its attorneys.

29. The knowledge of the fact that the jury had obtained a copy of the court's charge and used the same while deliberating upon its verdict, did not come to the claimant or any of its attorneys until after the verdict in this case had been rendered and the jury had been discharged.

2596 30. (The claimant and its attorneys ask leave to support the four preceding statements and allegations in this motion by proper affidavits to be hereafter filed.)

31. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The jury are instructed and charged that under the pleadings and all the evidence in this case your verdict must be in favor of the claimant or defendant herein upon all the counts or charges mentioned in the libel herein."

32. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The jury are instructed and charged that there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question has been mixed and packed with any substance so as to reduce or lower or injuriously affect its quality or strength, and upon that count or charge in the libel your verdict must be in favor of the claimant or defendant herein."

33. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question is mixed, colored, coated or stained in a manner whereby damage or inferiority is concealed.

34. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question contains an added poisonous or other added deleterious ingredient which may render it injurious to health."

35. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question has been misbranded within the meaning of the Pure Food Act."

36. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

2597 "That the burden of proving the allegations of the libel to be true is upon the prosecution and that before the jury can find against the claimant or condemn the property in question on any of the charges alleged in the libel they must find such charges to be true beyond a reasonable doubt and proven not only by a preponderance of the evidence on the part of the government but to the entire satisfaction of the jury."

37. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the truth of the allegations in the libel, that the flour in question has been packed and mixed with a substance known as nitrite or nitrite reacting material and that such substance has been so mixed and packed with the flour as to reduce or lower or injuriously affect its quality or strength, and unless you find that the truth of such allegations has been so proven you cannot find against the claimant or condemn the flour in question under that charge of the libel, and if you fail to so find your verdict upon such count or charge in the libel must be in favor of the claimant or defendant."

38. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the truth of the allegations in the libel, that the flour in question has been treated by the Alsop Process and that by such treatment the said flour has been mixed, colored and stained in a manner whereby damage and inferiority is concealed, and unless you find that the evidence does so prove that damage and inferiority actually existing in the flour seized in this case has been so concealed by its having been treated by the Alsop Process as alleged in the libel, you cannot find against the claimant or condemn the flour in question under that charge of the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant."

39. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the truth of the charge in the libel, that by the treatment of the flour in

question by the said Alsop Process it has been caused to contain added poisonous or other added deleterious ingredients, towit, nitrites or nitrite reacting material, which may render said flour injurious to health:

And in this connection you are further instructed that it is incumbent upon the Government to prove that any such added poisonous or other added deleterious ingredients, if any contained in said flour, are of such a character and contained in the flour seized in such quantities, conditions and amounts as may render said flour injurious to health, and unless you find that all of such facts are so proven you cannot find against the claimant or condemn the flour in question under that charge in the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant."

2598 40. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the allegations in the libel that the flour in question was sold under a distinctive name of another article than itself and was labeled or branded so as to deceive or mislead the purchaser, and that the packages or sacks containing the flour in question, and the labels thereon, bear a statement, design or device regarding the ingredients or substance contained therein, which are false or misleading. And unless you find the truth of such allegations have been so proven you cannot find against the claimant or condemn the flour in question under this charge of the libel, and if you fail to so find your verdict upon such count or charge in the libel must be in favor of the claimant of the defendant.

41. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"If unbleached flour or flour that is naturally aged contains nitrites or nitrite reacting material, and that such nitrites or nitrite reacting material are naturally present in such flour in practically the same manner as in the flour seized, then the flour seized cannot be condemned and your verdict on the charge relating to added poisonous or other added deleterious ingredients must be for the claimant or defendant.

42. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The law exempts from its operation poisonous or deleterious ingredients occurring naturally in food products, including flour, and if the jury believe that the nitrites or nitrite re-

acting material is a substance normally and naturally occurring in usual and ordinary food products in amounts the same as or greater than is present in the flour seized, then such nitrites or nitrite reacting material in the seized flour are not poisonous or deleterious within the meaning of the law, and the flour seized may not be condemned."

43. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"If nitrites or nitrite reacting material are usually and ordinarily imparted naturally to the usual and ordinary food products which are continuously used for food consumption without injury to health, then the adding in lesser or no greater amounts of such nitrites or nitrite reacting material by harmless methods to other food products, including flour, is not adding poisonous or other added deleterious ingredients to such food products within the meaning of the law."

2599 44. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The law does not prohibit the adding of nitrites or nitrite reacting material to flour, and a jury cannot find for the government or against the claimant, even if it be shown that nitrites or nitrite reacting material was added to the flour in question, unless they believe from a preponderance of the evidence that such addition, if any, rendered said flour injurious to the health of those who might consume the bread or other foods made from said flour."

45. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"Flour is not eaten in the raw state and if the nitrites or nitrite reacting material present in flour bleached by this Alsop Process is substantially eliminated or greatly reduced during the process of bread making or other process of preparing flour for consumption, the jury may take this fact into consideration in determining as to whether or not the flour contains any substance which may render it injurious to health."

46. Because the court erred in overruling claimant's motion to strike from the files and from the record the amended libel of the government.

47. Because the court erred in admitting in evidence over the objections and exceptions of the claimant the four patents described as government exhibits numbered 1, 2, 3 and 4.

48. Because the court erred in admitting over the objections and exceptions of the claimant special portions of the patents, government exhibits 1, 2, 3 and 4.

49. Because the court erred in admitting and permitting over the objections and exceptions of the claimant the government's counsel to read certain portions of the patents, government exhibits numbered 1, 2, 3 and 4, and to inquire of the witnesses as to whether such portions of said patents so read were true or not true.

50. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses as to the construction, operation, effect and result of the operation of processes for the bleaching of flour other than the Alsop process.

2600 51. Because the court erred in admitting over the objections and exceptions of the claimant incompetent, irrelevant, immaterial, illegal and inadmissible testimony in the case.

52. Because the court erred in admitting over the objection and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the chemical or other effect upon flour of invented processes other than the Alsop Process.

53. Because the court erred in permitting over the objections and exceptions of the claimant the witness Sheppard to testify that his bleaching of flour was not with the Alsop Process but in his own laboratory by nitrogen peroxide gas made by himself.

54. Because the court erred in allowing the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan to testify to their conclusions as to whether or not the flour in question was injurious to health.

55. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Sheppard as to his conclusions of the amount of damage inflicted upon the flour in question by the bleaching, as being an invasion of the province of the jury.

56. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel,

Folin, Boos, Child and Sloan as to their conclusions that the flour in question was injurious to health; that inferiority therein was concealed; that the quality and strength thereon was reduced; and that it was misbranded, as being an invasion of the province of the jury.

2601 57. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marsh, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the manner and mode of milling in mills other than the mill of the claimant which milled and produced the flour in controversy.

58. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the character, strength, durability and other properties of pipes from mills other than the mill from which the flour in question was produced.

59. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the character and quality of flour other than those produced by the Lexington Mills and Elevator Company.

60. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the character and quality of bread made from flour other than the flour produced by the Lexington Mill and Elevator Company.

61. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel,
2602 Folin, Boos, Child and Sloan as to the nature and effect of poisons generally, or poisons and materials other than those mentioned in the libel, namely nitrites or nitrite reacting material.

62. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann,

Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the effect of poisons generally or other material other than nitrites or nitrite reacting material upon the human system.

63. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the effect upon the human system of 53 or 56 different poisonous substances introduced into one meal of victuals to be consumed by a human being.

64. Because the court erred in permitting, over the objections and exceptions of the claimant, the government's counsel to make long, irrelevant, leading and misleading statements and speeches in his questions or interrogatories to the witnesses, which were highly prejudicial to the rights of the claimant.

65. Because the court erred in permitting over the objections and exceptions of claimant the counsel for the government to base questions of witnesses upon wrongful and irrelevant assumptions.

66. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan upon assumptions made by counsel for the government which were not based upon any of the issues in the case, or upon any of the material testimony, and which had no relevancy to the matter in controversy, and which were highly prejudicial to the rights of the claimant.

67. Because the court erred in making statements, arguments and giving evidence from the bench in the presence of the jury which were highly prejudicial to the rights of the claimant, by reason of which the claimant did not have a fair and impartial trial.

68. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Winton to the effect and in substance that upon the application of the Alsop bleaching process to the flour in his opinion nitrous and nitric acid were added to or mixed with the flour, as an invasion of the province of the jury, and as non-expert testimony.

69. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witnesses

Mitchell to the effect and in substance that the quality and strength of the flour was injured by the used of the Alsop Process, as being an improper conclusion of the witness.

70. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Kempster to the effect and in substance "that the presence in very minute quantities of nitrites in the air, articles of food, ham and vegetables being assumed, how can it be that the adding of nitrites in flour in such quantities as here suggested would be injurious to health", being a mere argument, non-expert testimony, and invading the province of the jury.

71. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of 2604 the witness Mann as to the effect of bleached and unbleached flour on the plant known as drosera, and as to the effect on insects, and of the chart or exhibit exhibited and introduced in evidence with reference thereto, for the reason that such testimony was immaterial to any of the issues in the case and had no bearing upon the questions in controversy or upon the quality or strength, inferiority or superiority, or the effect of said flour upon the health of the consumer.

72. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Ballard to the effect and in substance that he saw a mill at Nashville that tested a bleaching apparatus that Nordyke and Marmon were experimenting with, "I don't know what it was, an agitator was shipped to them and a large jug, a kind of a carboy, but I always thought that was sulphuric acid, but don't know"; and that he had also experimented with fumes of a sulphur candle, for the reason that such testimony was clearly outside the issues of this case and had nothing to do with the flour in this case or the manner in which it was bleached, or what was contained in it.

73. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Ballard that he had seen the Williams Process and experimented with [nitrocele], Dr. Wisner's gas, and was in a mill in Nashville where they experimented with a bottle that came there, but did not know what it was, for the reason that such testimony is not material to any of the issues in this case, a mere expression of the witness' opinion, and entirely hearsay.

74. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the wit-

ness Ballard to the effect and in substance that bleached or unbleached flour won't make as good a loaf of bread as the patent or the bleached flour, and that he has in his possession packages of unbleached and bleached flours which he 2605 offers in evidence, which flour was not bleached in any mill but was bleached in a chemical laboratory not by himself but by some one else, for the reason that the exhibits or samples referred to were bleached under conditions different from those of the Alsop Process, and for the reason that the witness testified that the bleaching effect was different in different conditions, and for the reason that the government had 597 sacks of the flour seized which could have been used, but which was not used by it, for the purpose of ascertaining its constituent parts and its effect upon health.

75. Because the court erred in admitting in evidence over the objections and exceptions of the claimant the testimony of the witness Comstock as to the meaning of the term or brand "fancy patent flour", for the reason that the testimony shows that the term "fancy patent flour" has no particular meaning, is a mere name of a flour put upon the sacks by the miller, and that there is no standard for the same, and it is stating a mere conclusion of the witness.

76. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Gifford to the effect and in substance that the flour seized was not in his opinion really a fancy patent flour made from the first quality of hard wheat, for the reason that the witness was not qualified to answer the question, was an improper conclusion of the witness, because the witness knew nothing of the conditions of wheat in Nebraska and because no standard was shown for the term fancy patent flour.

77. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Graham to the effect and in substance that the bleached flour with an agitator and a little fan on top of the agitator was a [jub] in which he put acid, for the reason that it has no bearing upon the issues in this case, has nothing to do with the 2606 Alsop Process, and throws no light upon the quality or ingredients of the flour in question.

78. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Wola-ver to the effect and in substance that yellow berry wheat was not in fact first quality of hard wheat, for the reason that the witness was not qualified to answer, knowing nothing about Kansas and Nebraska wheat, and because it was a mere conclusion of the witness and not a statement of fact.

79. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Westerman to the effect and in substance as follows:

"Mr. Butler: Well, give us the result of your experience, comparing the baking qualities, for cracker making, of bleached flour and flour of like quality, unbleached?

Mr. Smith: Object to this as incompetent, irrelevant and immaterial, and calling for simply a speculative opinion, as to relative merits, which, I think, falls under your Honor's ruling of the relative odor or a relative taste.

The Court: Oh, No; I think not. He may answer.

Mr. Smith: Exception.

Mr. Butler: Yes, tell us how it works, as compared with the other—flavor, odor and taste?

A. I made a test on 1200 pounds of bleached flour and 1200 pounds of unbleached flour, both at the same time, and, after the process of fermentation—

Mr. Helm: (Interrupting) Wait a minute. For the purpose of making an objection, I would like to ask the witness a question, whether or not these flours—

The Witness: (Continuing) After the process of fermentation of both flours, I found that the bleached flour had a dark grey color, and of an inferior flavor to that of the unbleached flour, which had a far superior color, and had the natural flavor of the wheat.

Mr. Helm: I desire to object to this question, the same as I was trying to object to the other, for the reason the witness hasn't shown where these samples of wheat and flour were obtained from—whether the bleached flour and the unbleached flour were produced from like qualities of wheat, by the same mill, or anything else. One is bleached and the other is unbleached, and they are not identified, and the testimony, so far, shows that there is a great difference, depending upon where the wheat is grown, and its quality, whether it is hard wheat or soft wheat.

The Court: I think that goes to the weight of it, and not the admissibility. He may answer.

Mr. Helm: Save an exception."

2607 80. Because the court erred in overruling, refusing and denying the motion of claimant to strike out all of the testimony upon direct examination of the witness Taggart, to which ruling the claimant excepted, and still excepts, for the

reason that it in no way pertained to the issues made by the pleadings in the case, and that in all his testimony he does not refer in any instance to the flour in question or to the bread made from the flour in question, or to crackers made from the flour in question, and the testimony does not pertain to the flour in question or to the mill or process in question, and is wholly irrelevant and immaterial to any issue in the case.

81. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Albrecht to the effect and in substance that the flour in question is not a fancy patent flour, for the reason that there is no standard fixed or shown for such flour, and that it is a mere conclusion of the witness.

82. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Marshall to the effect and in substance that in his opinion a substance or substances were added to the flour in question by the treatment of the flour by the Alsop Process, for the reason that it is a mere conclusion of the witness without any knowledge as to the Alsop Process, and an invasion of the province of the jury.

83. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Boos to the effect and in substance that upon the assumption that bread made from the flour contained nitrites or nitrite reacting material to the extent shown by the fluid in the tube, exhibit 30, in his opinion there had been a poisonous substance added to the bread by the bleaching of the flour that was seized, for the reason that there is no evidence that the flour in question contained any nitrites to the extent of the fluid in exhibit 2608 30, because the testimony is a mere conclusion of the witness, and is an invasion of the province of the jury to decide the case.

84. Because the court erred in admitting over the objections and exceptions of claimant the question to the witness Boos to the effect and in substance as follows:

"Q. Now, with respect to the adulteration of foods by the addition of poisonous and injurious substance, you may tell us whether or not in your opinion foods may be adulterated by such additions when the consumption of the same may not produce evidence of injury or poisoning manifesting itself by symptoms or apparant effect";

answered in the affirmative, for the reason that it is not responsive to any of the issues in the case, is a mere conclu-

sion of the witness is a mere conclusion of law, and does not refer to the flour in question or the bread made therefrom.

85. For the reason that the court erred in admitting over the objections and exceptions of claimant the question to the witness Boos to the effect and in substance as follows:

"Q. Now, as to power to endure the eating of nitrites in bleached flour bread—would that be constant, or variable?"

for the reason that the witness had said that he didn't know anything about it, that he had never observed any effect or result from the eating of nitrites whatever, except in concentrated form; that it is a mere conclusion of the witness and a conclusion of law.

86. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Sloan to the effect and in substance as follows:

"Q. Now Doctor, we want to take your opinion about a hypothetical question which I will ask, and in which I will ask you to assume certain facts. This is a proceeding by the Government to condemn as adulterated certain flour. You may assume to be true that the flour seized, complained of, was bleached by a process known as the Alsop process, which bleaching was affected by treating the flour with nitrogen peroxide gas mixed with atmospheric air to such an extent that the flour was substantially whitened; that upon such treatment the gas coming into contact with the flour and the moisture contained therein, there was formed in that flour two acids, nitric acid and nitrous acid, and there was added thereto poisonous substances, among them nitrites, organic and inorganic; you may further assume that this flour, and food stuffs made in whole or in part by its use, was by this treatment rendered less digestible than it would have been had it not been so treated; and you may further assume that upon the consumption of bread containing these nitrites so added an effect would be had upon the blood of the consumer depending in extent upon the quantity of nitrites consumed in the bread; that that effect is a chemical one, changing the hemoglobin of the blood to met-hemoglobin, and upon these facts I want to get your opinion as to whether or not the continued and customary use of bread made from such flour would be injurious to the health of consumers or tend to be so injurious?"

Judge Scarritt: Just a moment. I object to that, if your Honor please, because the question does not include all the testimony necessary to present the hypothetical question to the witness; further, it is based upon the assumption of opin-

ions of other witnesses, and third, that it invades the province of the jury, and calling for a decision of the issue that is involved in this case.

The Court: Objection is overruled.

To which exceptions were saved.

By Mr. Butler: Go on, doctor, you may answer.

A. In my opinion that would be the tendency.

Q. What would be the tendency, doctor?

A. To be deleterious to health.

Q. Upon what do you base that opinion, either in your experience or professional learning?

Judge Scarritt: I object to that because he has already said that he based it upon the hypothetical question.

Mr. Butler: Well, I mean the reasons for his opinion, of course it assumes the facts.

Judge Scarritt: For the reasons asked in the hypothetical question. When that is answered why as far as he is concerned that ends it. We object to it for that reason.

The Court: You may answer it; go ahead, doctor."

To which ruling exceptions were saved to the whole of the testimony which is incompetent and immaterial for the reasons above stated, and for the reason that the question assumes that there are nitric acid and nitrous acid in the flour, of which there is no proof; that the flour contains organic nitrites, of which there is no proof; that the effect of nitrites so added to the flour upon the blood of the consumer would be to produce met-hemoglobin of which there is no proof; and for the further reason that the witness in his cross examination as follows:

"Q. If any body is suffering from a poison by eating bread three times a day it is apt to be chronic, is it not?

A. Yes, sir.

Q. Now, what are the symptoms of chronic nitrite poisoning? A. That is what I don't know.

Q. Nobody else knows do they? A. No, sir."

2610 87. Because the court erred in refusing of his own motion to permit the jury at the request of the claimant to visit in charge of a bailiff one of the flour mills referred to in the evidence and located in the city in which the case was being tried, for the purpose of inspecting the same and ascertaining for themselves the arrangement and conduct of the process, the smell or lack of smell of the gas, the color or lack

of color of the gas, and the practical effect it had upon the flour while the same was being bleached.

88. Because the court erred in sustaining over the exceptions of claimant the objection of the Government's counsel to the testimony of the witness Leflang to the effect and in substance as follows:

"Q. You may tell the jury whether or not the flour is rendered inferior by this process from what it was before, in your opinion as a miller.

The Court sustained objections to which claimant saved exceptions.

Q. Could you ascertain by inspection whether a flour was inferior after the process from what it was before?

A. Yes, sir.

Q. Was this flour inferior after the process from what it was before? A. It was not."

objection of libelant sustained by the court on the ground that the witness has not shown himself to have any knowledge of this chemical change in the air as applied to the wheat, to which claimant saved exceptions; and for the further reason that this same witness was put upon the stand by the government and was shown to be experienced and qualified as a miller; and for the further reason that questions of the same character were asked by the counsel for the Government of his own witnesses and the objections thereto were overruled by the court.

89. Because the court erred in sustaining the motion of libelant to strike out the testimony of the witness Wesner to the effect and in substance as follows:

2611 "Q. How does the amount of nitrite reacting nitrogen in naturally bleached flour compare with that in commercially bleached flour?

A. Well, it would have been present to the same extent, and even more than what we find in the commercially bleached flour.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: The answer is stricken out as not responsive."

90. Because the court erred in sustaining the objection of the government to the testimony of the witness Wesner to the effect and in substance as follows:

"Q. Is there any difference in the chemical reaction, between natural bleaching, and flour bleached by the Alsop process?

A. I have never been able to find any chemical difference between naturally bleached, and that bleached by the Alsop process.

Q. Now, how have you arrived at this conclusion. Will you tell us, and, if you have made any experiments, you may recite them.

A. Well, in this way: the coloring matter in flour is a distinct chemical body, and it reacts towards oxide of nitrogen, in a certain way. That is, when it combines with these oxides of nitrogen, it loses its yellow color, and it does not make any difference whether the oxide of nitrogen is introduced by the flaming electric arc discharge, or whether the oxide of nitrogen be taken up from the air, by this coloring matter. Now, you take, for example, corn starch. That contains a—

Mr. Butler: (Interrupting) Just wait a minute. I object to that as argumentative, and not responsive to the question asked.

The Court: Yes, just confine your answer to the question.

Mr. Scarritt: He is going over the ground that his (the Government) witnesses went over, if your Honor please, and in the same way.

The Court: The objection is sustained.

Mr. Scarritt: Save an exception."

91. Because the court erred in sustaining the objection of the Government to the testimony of the witness Burgner to the effect and in substance as follows:

"Q. Now do you eat this bread from bleached flour yourself? A. I do.

Q. Do you use it in your family?

Mr. Butler: Oh, I think I will object to that as irrelevant.

The objection was sustained and exceptions saved.

92. Because the court erred in sustaining the objection of the Government to the testimony of the witness Edgecomb to the effect and in substance as follows:

2612 "By Mr. Elliott: Now, I will ask you to tell us what, in your judgment, is the effect on flour of bleaching it.

A. It whitens it in color, and ages the flour.

Q. And what? A. Ages the flour.

Q. Now, tell us what you mean by 'ages the flour'.

A. I mean that, before the use of the Alsop bleacher, we always carried large stocks of flour in the storehouse—

Mr. Butler: I object to that as not responsive to the question and move to strike it out.

The Court: That is not responsive, and is stricken out."

93. Because the court erred in his rulings, and remarks and arguments and statements before the jury at the trial which were to the effect and in substance as follows:

"Q. I will ask you if you have ever had experience in delivering, or giving bleached flour and unbleached flour to bakers? A. Yes, sir.

Q. And if there has been any difference in the way that flour has been received by any bakers, you can tell what it is.

Mr. Butler: Wait a moment. I have understood it to be indicated that we could not go into what the customers said.

The Court: One of the issues in this case is, not whether the customers are satisfied, so much, because it is charged that customers are satisfied by fraudulent methods, to-wit, in the language of the statute: 'If it be mixed, colored, stained, and so forth, in a manner whereby damage or inferiority is concealed', is one of the things charged, and, secondly, where a poisonous ingredient has been inserted; so that the customer, the bread eater—not the bread seller, may be deceived; inferiority may be concealed. That is one of the very issues. A man might hold his trade, and his bakers be absolutely satisfied, but it would be in contravention of the Pure Food Law, if they are satisfied, because they have been deceived, and inferiority is concealed, just as I may get a coat, supposing it to be a Scotch import, and be perfectly satisfied with it, but, upon analysis or investigation, it might be American shoddy. So, how can you make that the test, Mr. Elliott: I may have been satisfied with the bread I was eating, if I knew nothing about the bleached flour process. The inferiority may have been concealed from the ordinary housewife or servant, or the purchaser for the family. They may be perfectly satisfied, but, if inferiority is concealed, or the poison injected, is it not in violation of the Pure Food Law, precisely as my ham that I buy may be loaded with preservatives, or maple sugar that I buy may smell and taste to me like maple sugar, but an analysis may show that it is made out of brown sugar, and yet, the purchaser in the one case is entirely satisfied. So, how are you going to get at it in that way?

Mr. Butler: Let me suggest the further point that it is merest conclusion and hearsay.

The Court: I am simply saying, now, that in my judgment, it is not the test, to show by the miller, or by the baker that, because—

Judge Scarritt: (Interrupting) If your Honor please, we certainly must be permitted to object and except to the statements made by the Court at this time.

The Court: You may take exception, but nevertheless, I will make my statement, just as I understand the law, that, if it comes within either of these provisions of this statute, 2613 then this is contraband. Otherwise, it is not. I mean the two issues that I am now dealing with. There are two other issues. 'If it be mixed, colored, powdered, coated, or stained, in any manner whereby damage or inferiority is concealed,' then it is contraband, and in violation of the Pure Food Law, under which this trial is progressing.

Mr. Scarritt: Now, let me just suggest on that—

The Court: All right. Now, you go on and talk, Judge, and then I will go on.

Mr. Scarritt: I do not want to talk. I just want to suggest that this is one of the ways that your Honor has suggested, two or three times in this trial, that it goes to the question of the weight of the testimony, and not the admissibility of it, because it is one of the ways to determine whether there is inferiority there. People do not generally accept and take inferior things, without making some protest or kick, and this goes to that extent, to show that it is not inferior, that there is nothing concealed, that the superiority of the product is revealed, and not concealed. If everybody is satisfied with a certain thing, and so express themselves, either en masse, or as individuals, why that is testimony going to show that that article, or whatever it is, that meets the public approval, is a superior article, and not an inferior article.

Mr. Butler: The point is this: If the baker is satisfied with it, let us have him here, and we will ask him. If the house wife is satisfied, bring her here, and we will ask her. But, to have a man who is a miller testify by mere hearsay that is does so-and-so, does not appear to me to prove anything.

Mr. Scarritt: Is not the chain complete. The miller affords to the dealer what the dealer necessarily requires for the public consumption.

Mr. Butler: No miller can testify that I am satisfied or dissatisfied as to the flour, without hearsay.

Mr. Scarritt: Yes, he can. It is a matter of notoriety.

Mr. Butler: The miller might want to cheat the person who buys the loaf of bread, and he may want the bleached flour, and still pray for it.

The Court: Just a moment, gentlemen. Here is what I am trying to get at: I have not expressed any views in this case, and do not intend to, as yet, at least, as to what the evidence tends to show: I mention that, in answer to the criticism of Judge Scarritt, but sometime, sooner or later, you have got to get to the issues here, as presented by the statute, two of which issues are: 'If it', in this case meaning flour, 'be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed'; if the verdict is solely under that, one result follows. Another issue that will be submitted to the jury later on, is: 'If it',—meaning flour—'contain any added poisonous or other added deleterious ingredient which may render such article injurious to health'. Now, then, take it under the first one, particularly. Let me illustrate. I may buy or order at the cigar store a Havanna cigar, sold to me as a havanna cigar. I may think it is the finest cigar I have ever got in my life, but it turns out that it was native growth tobacco, one inferior to the other.

Mr. Scarritt: Not necessarily.

The Court: Now, Judge, I would like a good deal if I could talk once without interruption.

Mr. Scarritt: All right, I beg your pardon, your Honor.

2614 The Court: I may be satisfied in any supposed case—I don't care what you take—I may be satisfied, and yet, if the inferiority has been concealed, then it is a fraud, and much like all frauds, the fraud is concealed, otherwise the man would not purchase it. The horse with the heaves or other disorder, is concealed from me; I buy him, would not buy him, but for the concealment of the fraud. Now, the point I am getting at here, is it for the miller to say that the trade is satisfied? That is what I am getting at. The trade may be or may not be satisfied by the very concealment of the inferiority. I am not saying it is inferior. Later on that will be submitted to the jury. Whether new wheat flour, concealed as old flour, sweated in the sack, sweated in the bin, gone through the natural processes, if that is inferior, if that inferiority is concealed by the process, then, is it not in violation of this statute?

Mr. Scarritt: We must object and except in the same way, Your Honor.

The Court: Sir?

Mr. Scarritt: I say, we must object and except, as we did before, to the remarks of the Court at this time.

The Court: Which particular remark?

Mr. Scarritt: The remarks with reference to—

The Court: (interrupting) My reading the statute?

Mr. Scarritt: Reading the statute, and making the argument on this proposition.

The Court: Very well. I repeat, I have not expressed my views about the evidence in this case.

Mr. Scarritt: In this view, your Honor. Your Honor has said we must all keep our minds free from any conclusion, until we get through.

The Court: Yes, sir.

Mr. Scarritt: I think it is perfectly right.

The Court: Yes, sir. I have not expressed it, but I am trying to get back, because, sooner or later, this case is going to be submitted to the jury under the provisions of the statute, to which I will draw specific attention. If inferiority is concealed by the bleaching process, then what follows? If a poisonous gas—if it is poisonous—was injected in this flour, and the flour is made white, then, if that is harmful, and so forth, in the language of the statute, then what? Now, I see you gentlemen are all anxious to make a speech, and I am not anxious to hear you this evening. Court is adjourned until tomorrow morning.

(Thereupon Court was adjourned until ten o'clock A. M., Wednesday, June 22nd, 1910.)"

Which rulings and remarks and statements and arguments were highly prejudicial to the rights of the claimant, and were not germane to the matter under consideration at the time.

94. Because the court erred in his rulings, and remarks, and arguments and statements before the jury at the trial which were to the effect and in substance as follows:

"The Court: When we adjourned last evening, we were talking about certain matters. I do not know whether there was anything further counsel desired to say about that, or not? If there is, I will hear you, briefly.

2615 Mr. Elliott: If your Honor please, I do not want to weary you with this talk, but I merely want to make this observation, because I think my question was not understood. As I understand it, Mr. Butler has been endeavoring to show

that, if a new flour is bleached—that is, flour from new wheat, we will say, is bleached and whitened in color, and, if it possesses, notwithstanding the bleaching, all the properties of a new flour, and is unworkable, a person might buy that flour, thinking it was naturally aged flour, and it had the properties of naturally aged flour, and be deceived. Well, now, let us pass that for a minute. Now, I have been endeavoring to show by this witness that, in his judgment, flour from a new wheat that is bleached, not only is lightened in color, but that its quality is improved, and that it is aged and conditioned. That is what he testified. Now, it seems to me it is germane to that, to show the difference in the way flour has been received by his customers, whether it was unbleached or bleached.

The Court: Who do you mean by customers?

Mr. Elliott: The man he has sold it to—the baker, for instance. If he has sold them flour, bleached or unbleached, has there been any difference in the way they have been received, and if so, what? That is what I have been trying to bring out.

Mr. Butler: The last question is: 'If there has been any difference in the way that flour has been received, by any baker, you can state what it is'. Now, maybe the baker paid less for it [that] he would have paid if it had been a naturally aged flour. Maybe it is a matter of adjustment, commercial consideration, and, in any event, it is purely hearsay for him to testify as to the state of mind of a baker, as to this. Let the baker tell how this flour does. Let them say what kind of bread it makes. It is not for a miller to get off, in sweeping remarks, that it gives satisfaction to bakers, or somebody else. Let somebody else who has used it, who knows, say, and some one we can cross-examine. It won't do to bring witnesses here, who do not know anything, and let them give their conclusions, that we cannot cross-examine—matters of hearsay. That might do in a town meeting, but it won't do to try a law suit that way.

The Court: Now, let me say a few things. No one doubts the importance of these matters, and I am not speaking only of the present question. So far as that one question is concerned, it may or may not be pivotal, but, on the 30th day of June, 1906, four years ago, congress, with the approval of President Roosevelt, carried this measure forward into a statute known as the Pure Food and Drugs act. That is the statute under which we are proceeding, and under which this trial is being conducted. That congress had the authority and power to so enact, I have already

adjudicated in another forum, in part, the same parties, perhaps, and, in part, independent parties, but I have an abiding conviction on that question, as expressed in my opinion. I am not speaking as to the reasons for my opinion, but the conclusions. I could better that opinion, I think, if I had the time in which to do it, but I have seen no reason whatever to modify my conclusions as to an interstate shipment like this, from Lexington, Nebraska, to Castle, or Greencastle, or whatever it may be, in Missouri, being an interstate shipment, gives this court jurisdiction to hear and determine the question as to the particular flour now under seizure. This pure food statute seems to me is for the benefit of the consumer, in 2616 this case the bread eater, which comprises the entire human family. This statute is not for the benefit of the baker, or the middleman, not for the miller, nor for the wheat grower. It is for you, and it is for me, and every one else who eats bread, and probably we all do, three times a day, and, quite likely, that is true of the entire human family. Now, this statute is divided into three grand divisions. One is with reference to drugs and medicines, in which a distinct, specific test is made. With that, we are not now dealing. The second division is with reference to confectionery eaten, perhaps by all children, and quite a percentage of adults. That fixes a specific test in not what the confectionery shall contain, but what the confectionery shall not contain. The third and last division, being the one under which we are now proceeding, is with reference to food stuffs, including flour made up into bread, pastry, and so on. Most obviously there could be no specific test made with reference to foods, and the more one thinks about that, the more strongly it grows on him, and it necessarily follows that Congress was compelled to use some general terms in the statute. One is with reference to misbranding. To that, for the present, I shall not allude. But this statute refers in this way, aside from the interstate shipment proposition, which is a question of law 'that, for the purpose of this act, an article shall be deemed to be adulterated', passing by drugs and confectionery, 'in the case of food, first if any substance has been mixed and packed with it, so as to reduce or lower, or injuriously affect its quality or strength'. The pleadings under that clause, present an issue that is now being tried. Passing by the second and third, as not being germane to any inquiry here, the fourth 'if it be mixed,—it meaning flour—'colored, powdered, coated, or'—disjunctive 'or'—'stained in a manner whereby damage or inferiority is concealed'. Now, under that, these pleadings present a distinct issue. Fifth 'If it'—meaning flour, in this case—'contain any added poisonous, or other added deleterious ingredient, which may render such article injurious to health'. Now, there are

the four issues we are trying. First, with reference to misbranding, that I have passed to one side for the time being. Here are the other three.

Mr. Scarritt: Is your Honor charging the jury, now?

The Court: No, sir. I am giving my reasons, being an explanation of my ruling. Why that question, Judge, I do not understand.

Mr. Scarritt: Well, it seems to me it does not appertain to the ruling, as to whether these bakers shall testify as to what effect this flour has. They are part of the community. You cannot exclude them as a part of the community. They are consumers, as well as purchasers.

The Court: My belief is, this statute is for the benefit and protection of consumers.

Mr. Scarritt: I agree with you, and they are consumers. We are all consumers, but it seems to me it is unnecessary at this time, if your Honor please, with all due regard and respect for your Honor, I have to go over the whole ground of this pure food law. That is what occurs to me. It is anticipating the charge to the jury. I say that, because I think that it is my duty to say it in the interest of my clients.

The Court: I was trying to analyze the issues, and what leads up to it.

Mr. Scarritt: I understand, your Honor.

2617 The Court: Now, there are two theories here with reference to the poison. One, by the government, and one by the defendant, concerning which I now have nothing to say, but will, later on, in my charge to the jury. But the question now before the court goes to clause four, which I repeat 'If it'—meaning flour in this case—'be mixed, colored, powdered, coated, or stained, in a manner whereby damage or inferiority is concealed'. Concealed from whom? That is the ultimate question that I am to charge this jury concerning. Now, any evidence on the part of the government that tended to show that inferiority of flour is concealed by the bleaching process, was admissible. Any evidence tending to show that inferiority of flour is not concealed by the bleaching process, is legitimate evidence for the claimants to offer. Now, I am not saying but what you can take it, step by step, and show that the baker is not deceived, or that the inferiority, if there is an inferiority—and that is a question of fact for the jury—I am not saying but that you can show by the baker that the inferiority, if any, is not concealed from him, the baker. The question is, is that enough? I am not now saying. I will cover that in

my final charge to the jury. I am not charging the jury here at all, yet. I am giving the reasons for the analysis I have made in my own mind, of this statute. Therefore, I think you can take, one step at a time, show that if there is any inferiority, that such inferiority is not concealed from the baker, but the question remains, will that be enough? I shall wait for further arguments on that. But I have no doubt in my own mind, at this time, subject to any change of opinion, about it, that this statute is for the benefit of the consumer. Therefore, I will allow this question to be answered.

Mr. Scarritt: If your Honor please, we desire to except to the remarks of the court in making the ruling on this question, and save our exceptions.

The Court: Very well."

Which rulings and remarks and statements and arguments were highly prejudicial to the rights of the claimant, and were not germane to the matter under consideration at the time.

95. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Boettler to the effect and in substance as follows:

"Q. Is there such a thing as eggs preserved with borates?

Mr. Scarritt: We object to that as immaterial.

The Court: Go on.

A. There are preserved eggs, but I don't know what they are preserved with.

Q. Did you ever try preserved eggs, to make cake, with unbleached flour? A. Undoubtedly.

Q. Now, I would like to know where you got those eggs, and how they were preserved?

Mr. Scarritt: We object to this line of testimony, if your Honor please,—immaterial.

The Court: He may answer.

2618 96. The court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Sayre to the effect and in substance that the addition of prussic acid to cantaloupe and to coffee and to shredded wheat biscuit and to bacon eaten for breakfast would be injurious to health; for the reason that it has no relation to any of the issues in this case, and was made for the purpose of misleading the jury and prejudicing the rights of the claimant herein.

97. For the reason the court erred in sustaining the motion of libellant's counsel to strike out the testimony of the wit-

ness Abbott to the effect and in substance that deception as to the grade of flour could be practiced as well with the unbleached flour as with the bleached flour.

98. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Teller to the effect and in substance as follows:

"By Mr. Butler:

Q. Is a carload of corn a poisonous substance?

A. Taken in quantity it would be.

Q. Yes, all right. How is this NOCl shipped out, in what commercial volume does Professor John A. Wesener ship that out to millers to bleach flour?

A. I never kept track of that.

Q. Have you seen the carboys there like the compressed soda water drum?

A. I have seen some cylinders, yes.

Judge Scarritt: We object to that as clearly outside of the issues in this case. About nine-tenths of the testimony that has been introduced here is on other things that have no more to do with this flour in question than the man in the moon.

The Court: Objection overruled.

Exception saved.

Q. Now, is a whole drum full of nitroxyl chloride a poisonous substance? A. In concentration it is poisonous.

Q. As shipped out is it a poisonous substance?

The same objection by claimant.

The Court: He may answer.

Exceptions saved."

99. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Albert to the effect and in substance as follows:

2619 "Q. Don't you think it would be a poor policy to put nitrites in baby's food regularly so the mother could not keep it out. I ask you if it would not be poor policy to purposely add nitrites like amyl nitrite, for example, to a baby's foods regularly and habitually and to such an extent that neither baby nor parent could avoid giving the nitrite carrying food to the baby? That, I think, is within the fields of pathology.

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial; invading the province of the jury; and a wrongful conclusion of the witness because there is no amyl nitrite in this flour, improper cross-examination, and simply for the purpose of prejudicing the jury.

The Court: He may answer.

Exceptions saved."

100. Because the court erred in permitting over the objections and exceptions of claimant the question to the witness Webster to the effect and in substance as follows:

By Mr. Butler:

"Q. And cream, now then we will assume that the milkman for the purpose of making his cream or milk stand up a little longer, it is artificial aging he will call it for short, put in a little formaldehyd but so small an amount that the most feeble person in the community might take the milk in ordinary consumption as milk is consumed and that no doctor whether skilled or pharmacologist or toxicologist could observe any harmful effects on the public or the person, whoever it was, from the formaldehyd, in such case from the standpoint of health would you approve or would not disapprove of the addition of the formaldehyd, am I right?";

for the reason that it is absolutely immaterial to any of the issues in this case, and introduced only for the purpose of prejudicing the jury.

101. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Webster to the effect and in substance as follows: That the adding of formaldehyd to milk, sulphates to syrup and borax and coal tar dye to butter, and other ingredients to other substances, and eaten as a breakfast would be poisonous, for the reason that it is immaterial and of no relevancy to any of the issues in the case, and is introduced for the purpose of misleading and prejudicing the jury: and in the same connection also objected and excepted to the remarks of the court to the effect and in substance as follows:

"Q. The Court: Now, Mr. Butler has commenced with the oat meal and cream with some poison in it, but not
2620 enough of itself to hurt, and then he takes pancakes with butter and syrup, then he takes eggs, and he takes bacon, now then, and coffee, now then he finally quits, he finishes all his breakfast, or turns to take some bread and butter, I don't know what else. Now when you get through with an ordinary meal for a healthy man, with a good appetite,

the question is what are you going to have when you get through.

Judge Scarritt: I want to make an objection to the question as stated by the court and by the gentleman on the other side, as absolutely irrelevant, incompetent and immaterial to any of the issue in this case, and involves an analysis of every ingredient in every piece of food that has been mentioned, and the action or comparative action of one poison upon another, or one ingredient upon another, and is an unfair question and an unfair illustration, as applied to the issues in this case with reference to this bleached flour.

The Court: Objection is overruled."

Exceptions saved.

102. Because the court erred in admitting over the objections of claimant the testimony of the witness Webster to the effect and in substance as follows:

"Mr. Butler: Now, if, at the hearing of the bleached flour case in Washington, November, 1908, he (Dr. Wesner) stated in substance:

Mr. Elliott: Now, just in regard to that. We object to this, your Honor, because Doctor Wesner is not here, and there is no possible way of knowing whether that is what Doctor Wesner said, or not.

Mr. Butler: I am going to ask him about his testimony. That is what he said, and you have the transcript, and you will find that at page 277 of the transcript furnished you of that bearing, when you, yourself, were there, taking part in the hearing.

Mr. Scarritt: It don't make any difference who was there. This kind of testimony is not admissible. It is purely hearsay, not an impeaching question, because he didn't ask Doctor Wesner, when he was here, if he said that, and we object to it for those reasons.

The Court: Objection is overruled."

Exceptions saved.

The question was answered.

103. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Webster to the effect and in substance as follows:

"Mr. Butler: But you would say that it was wicked, and sinful, and wrong to add formaldehyd to clean milk that was

being fed to a baby—pure, fresh milk? You would say that was dangerous to the baby's health, and it would be wicked and wrong to do it, wouldn't it?

Mr. Scarritt: We object to that form of question.

The Court: He may answer.

104. Because the court erred in refusing and denying the claimant the right to introduce upon the examination
2621 of the witness Cross the exhibit numbered 281 of gas obtained by him at the Alsop Process mill, mentioned in evidence, and for refusing to allow such exhibit number 281 to be substituted for exhibit number 280, and in the same connection the court erred in the statements and remarks made by him in reference to such exhibits, which were to the effect and in substance as follows:

"Judge Scarritt: We are perfectly willing to let the jury go and see it themselves.

The Court: Judge Scarritt, no use of saying, as has frequently been said, for the jury to go and see it for most obvious reasons to me as a lawyer, for the reason that it cannot be made of record; there is no statutory authority therefor either federal or state that I know anything about. There is nothing for the jury to see if they go there other than what has been described here twenty-five or fifty times, and it will not do for you to say that I am keeping out any evidence, or anything that would enlighten the jury; it would not enlighten the jury, and it could not be made of record if I did allow them to go.

Judge Scarritt: We object and except to the remarks of the court."

105. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Lecount and the witness Schwitzer as to the effect of the introduction of 55 poisons in the food of an ordinary human being in the three meals consumed by such being in a day, as being entirely irrelevant and immaterial to any of the issues in the case.

106. Because the court erred in admitting over the objections and exceptions of the claimant the testimony on rebuttal of the witness Acree for the reason that the same was not proper rebuttal testimony.

107. Because the court erred in not submitting all of the issues in the case to the jury in his charge.

108. Because the court erred in submitting only two forms of verdict to the jury.

109. Because the court erred in not submitting to the jury a form of verdict upon each of the four charges or counts contained in the libel in this case.

2622 110. Because the court erred in charging the jury peremptorily to find for the Government upon all the charges in the libel.

111. Because the charge of the court to the jury has the effect of confiscating claimant's property without authority of law.

112. Because the court's charge to the jury is inconsistent and contradictory.

113. Because the court's charge to the jury does not present all the issues under the evidence.

114. Because the court in his charge to the jury commented upon and emphasized portions of the testimony and evidence favorable to the Government to the exclusion of testimony and evidence favorable to the claimant.

115. Because the court erred in submitting to the jury in its charge inconsistent issues of misbranding and adulteration.

116. Because the court erred in its charge in peremptorily instructing the jury to find the issues for the Government upon both the charge of misbranding and of adulteration, which are inconsistent and contradictory.

117. Because the verdicts of the jury are inconsistent and contradictory.

118. Because the verdicts of the jury as to misbranding and adulteration cannot stand together.

119. Because the verdict and judgment are contrary to law.

120. Because the verdict and judgment are contrary to the weight of the evidence.

121. Because the verdict and judgment are contrary to the law and the evidence.

2623 122. Because upon the whole evidence in this case the verdict and judgment should have been for the claimant and not for the Government.

123. Because the court erred in instructing and charging the jury as follows:

"The statute under which this proceeding was brought and the case now being tried is an enactment of the Congress of the United States approved by the then President June 30th, 1906, (four years ago). This statute as to its validity is challenged by the claimant herein. But with that question you have no concern other than to observe it, because the Court holds that the Congress of the United States with the approval of the President had the power under the Constitution of the United States to enact the statute that was enacted and under which we are proceeding, and the Court holds and so directs you that the statute is a valid enactment, and to be enforced in any and all cases where the evidence and the facts come within the wording of the statute."

124. Because the court erred in instructing and charging the jury as follows:

"It will be observed that the statute deals with drugs, medicines, liquors and foods. A part of the statute is with reference to drugs, medicines and liquors, and likewise confectionery, but with which in this case we are not concerned except as the same has a bearing with reference to foods."

125. Because the court erred in instructing and charging the jury as follows:

"While you are the sole judges of the facts and of the testimony, and what weight shall be given thereto regardless of expressions of opinion by me, it is my belief that I can be of substantial aid to you in stating some facts which in my opinion are so well established by the evidence as that you ought to have but little or no argument with reference thereto, and take the same as established facts."

126. Because the court erred in instructing and charging the jury as follows:

"It is also an established fact in the opinion of the Court that the flour seized and in question was made from wheat of a 1909 crop grown in the State of Nebraska and known by the name of No. 2 Turkey Wheat, and that the wheat was ground at the claimant's mill at Lexington, Nebraska, on the night of March 31st, 1910, and shipped the next day to the said Terry at Castle, Missouri, by whom it was received in about seven days."

127. Because the court erred in instructing and charging the jury as follows:

"It is also an established fact in the opinion of the Court that the wheat from which the flour was made contained a percentage of what is called Yellow berry wheat. The witness, Mr. Tucker,

the head miller of claimant, testified that the yellow
 2624 berry was about or approximately ten to twenty-five per
 cent of the entire amount of the entire wheat used to
 make the flour in question that has been seized in this case, and
 the testimony of the other millers in Nebraska and Kansas
 shows that the wheat called 'yellow berry' is frequently, indeed
 commonly found mixed with turkey wheat as it is grown in
 those states, and that the percentage of such yellow berry varies
 frequently running higher than fifty or seventy-five per cent of
 the turkey wheat produced in various places and communities
 in said states."

128. Because the court erred in instructing and charging
 the jury as follows:

"It appears that nitrogen-peroxide gas is—in concentration
 —a brownish or yellowish gas heavier than atmospheric air,
 of offensive odor, corrosive in character, and a poison and de-
 leterious substance, and if taken by a human being in suffi-
 cient quantities will produce poisonous action and death."

129. Because the court erred in instructing and charging
 the jury as follows:

"It appears that when nitrogen peroxide gas is brought into
 contact with water or moisture, there is by chemical change
 produced nitrous acid and nitric acid in equal quantities, and
 it also appears that each of these acids so produced is a poi-
 sonous and deleterious substance which if taken by a human
 being in sufficient quantities will produce poisonous action and
 death."

130. Because the court erred in instructing and charging
 the jury as follows:

"It appears that nitrous acid readily combines chemically
 with other substances such as are contained in wheat flour and
 thereby forms nitrites of various kinds, depending upon the
 character of the substances with which the acid chemically
 combines.

131. Because the court erred in instructing and charging
 the jury as follows:

"It appears that such nitrites as may be formed by the in-
 troduction of nitrous acid into flour are poisonous and dele-
 terious substances and that if taken by a human being in suffi-
 cient quantities, will produce poisonous action and death."

132. Because the court erred in instructing and charging
 the jury as follows:

"It appears that nitric acid readily combines chemically with other substances such as are contained in wheat flour, and thereby forms nitrates of various kinds depending upon the character of the substances with which the acid combines."

133. Because the court erred in instructing and charging the jury as follows:

2625 "It is not incumbent on the government to show that the allegations of the amended libel in a case like this are true beyond a reasonable doubt. Proofs beyond a reasonable doubt are only exacted in a criminal case, and this is not a criminal case within the meaning of that rule, but it is an action in the nature of a civil action."

134. Because the court erred in instructing and charging the jury as follows:

"It is incumbent on the government to prove that the flour seized was adulterated and misbranded in some respect or particular alleged in the libel. But it need not prove that the flour was adulterated or misbranded in all of the respects and particulars alleged. If it appears from the evidence in this case that the flour was adulterated in any respect or particular alleged, then you must find for the government that the same was adulterated, and if it appears from the evidence that the same was misbranded in any respect or particular alleged, then you must find for government that the same was misbranded."

135. Because the court erred in instructing and charging the jury as follows:

"I charge you that if the treatment of this flour by the Alsop process for the purpose of bleaching and whitening resulted in any injury to the capacity of the flour to change and improve as it would have changed and improved if aged by natural processes, that your finding must be for the government that the flour is adulterated."

136. Because the court erred in instructing and charging the jury as follows:

"On the second branch of this particular issue, I charge you that if you find from the evidence that by the direct action and as a result of the treatment of this flour by the Alsop process the elasticity of the gluten has been lessened or impaired so as to injuriously affect the bread-making qualities of the flour, that your finding must be for the government that this flour is adulterated."

137. Because the court erred in instructing and charging the jury as follows:

"On the third point of this particular issue, the government claims that the treatment of this flour by the Alsop Process caused substances known as nitrites or nitric reacting material to [by] mixed and packed with the flour so as to reduce, lower and impair its bread-making qualities, and so as to render the same injurious to health. If you shall find from the evidence that the flour seized was by such treatment so injured, your finding must be for the government that this flour was adulterated."

138. Because the court erred in instructing and charging the jury as follows:

2626 "And it further appears that by the lapse of time and aging and conditioning by natural processes wheat flour will improve for a period of time, stated to be from two to four months, or thereabouts, and that such improvement increases the value of the flour and makes it lighter in color; and it further appears that this bleaching process makes the freshly milled wheat flour appear to be like and to simulate the appearance which that same flour will assume after natural aging and conditioning. And it further appears that this flour when seized was not naturally aged or conditioned, but was newly milled flour."

139. Because the court erred in instructing and charging the jury as follows:

"On the second branch of this particular issue, I charge you that if the treatment by the Alsop Process has given to this flour the appearance of a better grade or quality of flour than it really is, you should find for the government that it is adulterated."

140. Because the court erred in instructing and charging the jury as follows:

"And upon the third branch of this particular issue, I charge you that if you should find from the evidence that this flour is of a grade of flour inferior to patent flour or is a flour inferior to flour made from the first quality hard wheat, and that bleaching by the Alsop Process has caused it to have the appearance either of a patent flour—as that term will be explained to you in this charge—or the appearance of a flour made from the first quality of hard wheat, then you must find for the government that this flour is adulterated."

141. Because the court erred in instructing and charging the jury as follows:

"The substance of the charge found in the amended libel is that by the treatment of the flour by the Alsop Process it has been caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to-wit: nitrites, nitrite-reacting material, nitrogen peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances."

142. Because the court erred in instructing and charging the jury as follows:

"On the other hand, it is the claim of the claimant that even though the flour contain added poisonous or other added deleterious ingredient, it may not be condemned unless it shall further appear that such added substances are in such quantity that the flour shall be thereby rendered injurious to health."

143. Because the court erred in instructing and charging the jury as follows:

"And in enforcing the statute in proper cases the fact that it will subject the millers to some expense, or the fact, if
2627 it be a fact, that it will enable the millers to market their flour more readily or at a better price, is entitled to no consideration and will receive no weight at your hands."

144. Because the court erred in instructing and charging the jury as follows:

"The word 'poisonous' as an adjective conveys a descriptive meaning and is used in a qualitative sense, and not in a quantitative sense. That is, it refers to the kind of substance, and not to the quantity of the substance. This idea or meaning is further emphasized and rendered more certain by the qualifying clause 'which may render such article injurious to health.' It does not say 'Which does render such article injurious to health,' but manifestly it was the purpose of Congress to include in this distinction all ingredients of a poisonous character to which in their essential nature, might be ascribed the tendency to affect health injuriously."

145. Because the court erred in instructing and charging the jury as follows:

"It is not conceivable that the Congress of the United States, when it passed this act, intended that producers and vendors might continue to add poisonous and other injurious substances to food so long as the quantity added was not sufficient to produce observable poisonous or injurious effects upon the health of consumers, nor is it conceivable that Congress intended to require that the government before proceed-

ing to condemnation of an article of food as adulterated must prove that it contains added poisonous or other added deleterious ingredient in such a quantity as would render such article injurious to health. It is known to every one that there is no method of ascertaining or measuring the effect of the consumption of such substances in food upon the public health or upon the health of any particular individual."

146. Because the court erred in instructing and charging the jury as follows:

"It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances."

147. Because the court erred in instructing and charging the jury as follows:

"The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances? Therefore the court charges you that the government need not prove that this flour or food stuffs made by the use of it would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case."

148. Because the court erred in instructing and charging the court as follows:

2628 "The flour seized in this case is an article of food within the meaning of the Act of Congress."

149. Because the court erred in instructing and charging the jury as follows:

"It is admitted that this flour was treated by the Alsop Process for the purpose of bleaching or whitening, and the evidence establishes that nitrogen-peroxide gas was employed for that purpose and further establishes that that gas, nitrous acid, nitric acid, and nitrites of the kind which may be produced by such treatment are poisonous and deleterious substances, and that these substances when taken in sufficient quantities will produce poisonous action or death."

150. Because the court erred in instructing and charging the jury as follows:

"It appears from the evidence in this case that the bleaching process imparts and adds to flour substances referred to in the testimony as nitrites or nitrite-reacting material, and such

substances were imparted to the flour seized in this case by the bleaching process. It further appears from the evidence that such substances so imparted or added to this flour are qualitatively both poisonous and deleterious, that is to say, that these substances are of a poisonous and deleterious character."

151. Because the court erred in instructing and charging the jury as follows:

"It is well known that wheat flour is not eaten raw. There is evidence in this case that tends to show that during the process of making bread nitrites or nitrite-reacting material contained in the flour is lessened and may be eliminated under some circumstances, but it is also well known that wheat flour is used for the making of other articles of food—biscuits, dumplings, pastry, cake, crackers, gravy, and perhaps other articles of food, which may be consumed by all classes of persons, the young, the old, the sick, the well, the weak, and the strong; and I charge you that it is right for you in reaching your verdict to take these facts into consideration together with all the other proven facts and circumstances in the case.

152. Because the court erred in instructing and charging the jury as follows:

"With reference to the issue as to misbranding, the same divides itself under two heads, one with reference to quality of the flour, and the other with reference to kind of wheat from which it was made. The flour is branded as a fancy patent flour and it is also represented by label on each sack that the flour is made of first quality hard wheat."

153. Because the court erred in instructing and charging the jury as follows:

"It is the law that if the phrase 'patent flour' has a well known and well understood meaning generally among
2629 millers, flour purchasers, bakers, and in the flour markets of the country, then such meaning as so understood is to be attributed to that phrase. In other words, patent flour is the kind of flour that it is generally understood to be by millers, bakers, flour purchasers and in the markets generally."

154. Because the court erred in instructing and charging the jury as follows:

"On the second branch of the charge of misbranding contained in the amended libel, the facts appear to be that the flour seized was manufactured by the claimant at its mill from wheat which was raised in the year 1909 in the general vicinity of Lexington, in the State of Nebraska; that the wheat

weighed about fifty-nine pounds to the bushel, and was of a variety known as No. 2 Turkey wheat, in which there was a quantity of wheat known as yellow berry or as sometimes called by millers, 'yellow belly', amounting to from ten to twenty-five per cent of the total wheat used to make this flour."

155. Because the court erred in instructing and charging the jury as follows:

"The wheat known as yellow berry is commonly found in Nebraska and Kansas growing with turkey wheat. It differs in color and quality from pure turkey wheat, and is considered by the millers less desirable and is of less value commercially."

156. Because the court erred in instructing and charging the jury as follows:

"The words upon each sack, 'this flour is made of first quality hard wheat', is in effect a representation that the flour seized was made from the best hard wheat."

157. Because the court erred in instructing and charging the jury as follows:

"You are to determine whether or not that representation is true. And in so doing you will not be controlled by the facts, if it be a fact, that the wheat used was the best grown in the district where claimant procured his supply for milling, but you have a right to consider the same in comparison with other wheats grown in different places and parts of the country as disclosed by the evidence in the case, and in the light of all of the evidence on this question say whether or not the wheat used was in truth and in fact first quality hard wheat."

158. Because the court erred in instructing and charging the jury as follows:

"In view of statements that have been made by counsel during the progress of this case, you will not consider and you must put to one side all questions of who the counsel are, or where they are from. This is not a contest between states or section of the country."

159. Because the court erred in instructing and charging the jury as follows:

2630 "The fact that the Patent Office at Washington issued a patent for the Alsop Process has nothing to do with the question of branding correctly, or misbranding of flour. The fact that the Patent Office issued a patent for the Alsop Process does not warrant nor authorize the adulteration of flour as made by the Alsop Process, if it is adulterated. All

these things must be put to one side, and your verdict must be determined in accordance with the law and facts in the case. It is of no importance to you, nor is it of importance to me, who will be pleased or displeased in this case, whether of counsel or of the parties, or of any other person. The only question is, What is the right, and what the wrong of this case?"

160. Because the court erred in instructing and charging the jury as follows:

"Your verdict must recite whether this flour was misbranded or not, and your verdict must further recite whether this flour was adulterated or not, within the meaning of what I have heretofore said to you."

161. Because the court erred in its charge to the jury in submitting two verdicts or findings of fact for the jury to sign and return.

162. Because the court erred in instructing and charging the jury as follows:

"You will make no other findings than these two. All matters bearing on these two forms you will give due weight thereto, and all matters not having a bearing thereon, you will utterly disregard."

163. Because the court erred in refusing to charge the jury as requested by the claimant and defendant in written requests heretofore filed.

164. Because the court erred in its charge to the jury in not submitting all the issues of the case to the jury, and in not submitting forms of verdicts on the four charges in the libel.

165. Because the court erred in its charge to the jury by not giving the jury in such charge a definition of poison or poisonous.

166. Because the court erred in its charge to the jury in submitting to the jury therein a wrong theory of the case and of the law of the case and of the evidence in the case.

167. Because the court erred in admitting over the objections and exceptions of the claimant, and in overruling claimant's objection thereto, the testimony of the witness Shepard to the effect and in substance as follows:

"By Mr. Butler:

Q. Will you give us the result of your study with respect to the amount of damage to the gluten of the flour resulting from the use of various amounts of this nitrogen peroxide gas employed by the Alsop Process?

A. Yes, sir, I took the same flours and some unbleached and some bleached.

(The witness proceeding with a long statement as to the effect of nitrites upon flours.)

By Mr. Elliott: Your Honor, for the purpose of an objection I would like to ask this witness how was this flour bleached that you were talking about?

A. I bleached it myself.

Q. With what? A. With nitrogen peroxide.

Q. Did you bleach it with the Alsop machine?

A. Not with the Alsop machine.

Q. I will ask you if you have analyzed the gas of the Alsop machine and if you know the proportion of peroxide in it to [add]? A. No, I have not.

Mr. Elliott: Then I object, your Honor, to this testimony because it is not the process that was used by the claimant in bleaching his flour and it is not germane to any—I mean effects that Professor Sheppard got bleaching in his laboratory with pure gas, is not germane to what the Lexington Mill did, using the Alsop Process.

Witness: Mr. Elliott, first, one word of explanation.

The Court: Just wait a minute. Objection is overruled and the claimant excepts."

Upon the foregoing grounds and for the foregoing reasons the claimant prays the court to grant it a new trial of this cause.

ED P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,
Attorneys for Claimant.

W. C. Scarritt,
A. M. Seddon,
Of Counsel.

2632 In the United States District Court for the Western Division of the Western District of Missouri.

United States of America
No. 285. vs.
Six Hundred and Twenty-five (625) Sacks of Flour, Lexington Mill & Elevator Company, Claimant.

Motion in Arrest of Judgment.

Comes the claimant and defendant in the above entitled cause and prays the court to arrest the judgment herein for the reasons following, to-wit:

1. Because the libel herein does not state facts sufficient to constitute a cause of action in favor of the United States of America and against the defendant.
2. Because the law under which this action is brought is unconstitutional, oppressive, confiscatory and void.
3. Because under the libel, the evidence and the law as declared by the court, this court has no jurisdiction to render the judgment herein.
4. Because under the pleadings and evidence herein the verdict and judgment should have been for the claimant and defendant and not for the plaintiff.
5. Because the verdict and judgment are contrary to law.

ED P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,

Attorneys for Claimant and Defendant.

W. C. Scarritt,
A. M. Seddon,
Of Counsel.

2633 Theretofore, on the 22nd day of July, 1910, the court made and entered the following order in said cause:

In the United States District Court for the Western Division of the Western District of Missouri.

United States of America

No. 285. vs.

Six Hundred and Twenty-five (625) Sacks of Flour, Lexington Mill & Elevator Company, Claimant.

Order.

"Now on this day it is ordered that the claimant and defendant herein have until on or before the first day of November, 1910 within which to bring on for hearing the motions for new trial and in arrest of judgment, filed herein by leave of court, and have until on or before said date to prepare and file a bill of exceptions herein, with leave to file affidavits in support of motion for new trial within ten days from this date."

Whereupon and thereafter on the said 22nd day of July, 1910, the said claimant filed herein said affidavits in support of said motion for a new trial; which said affidavits so filed are in words and figures following, to-wit:

2634 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,

vs.

Six Hundred Twenty-Five Sacks of Flour. Lexington Mill & Elevator Company, Claimant.

Affidavit in support of motion for new trial.

State of Missouri,
County of Jackson—ss.

Bruce S. Elliott, A. E. Helm and Edward L. Scarritt, of lawful age, being duly sworn, upon their respective oaths state that they were the attorneys and counsel for the claimant and defendant in the above entitled cause, and as such counsel were engaged in the trial of said cause from the empanelling of the jury to and including the entry of the final judgment of the court therein; that Edward P. Smith was one of the attorneys for the claimant and defendant in said cause, but that said Edward P. Smith was by reason of illness forced to leave the trial of said cause before the return of the verdict and entry of judgment therein;

That it is the understanding of these affiants, and such has been their information, that when the jury in said cause retired to consider the verdicts therein they were permitted and allowed to take with them to the jury room a purported written copy of the charge of the court delivered to the jury therein; that said purported written copy of the charge of the court to the jury was taken by the jury to their room without the consent or knowledge of any of these affiants; and it is the belief and information of these affiants that the jury read, discussed and interpreted said purported written
2635 copy of the charge of the court to the jury during their deliberations and before arriving at their verdicts in said cause.

BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT.

City of St. Louis,
State of Missouri—ss.

Subscribed and sworn to by Bruce S. Elliott, before me a notary public within and for said city and state this July 22nd, 1910. My commission expires June 20th, 1912.

(Seal) ADOLPH ABBEY,
Notary Public.

State of Kansas,
Sedgwick County—ss.

Subscribed and sworn to by A. E. Helm, before me, a notary public within and for Sedgwick County, State of Kansas, this 20th day of July, 1910. My commission expires Nov. 17, 1913.

(Seal) J. W. SMYTH,
Notary Public.

State of Missouri,
County of Jackson—ss.

Subscribed and sworn to by E. L. Scarritt before me this 23rd day of July, 1910. My com. expires May 6th, 1912.

(Seal) ALFRED M. SEDDON,
Notary Public for Jackson,
County, Missouri.

2636 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,
No. 285. vs.

Six Hundred Twenty-Five Sacks of Flour. Lexington Mill & Elevator Company, Claimant.

Affidavit in support of motion for new trial.

State of Missouri,
County of Jackson—ss.

Henry C. Crow, of lawful age, being duly sworn, upon his oath states that he was one of the jurors composing the jury in the above entitled cause, which jury returned two separate verdicts in said cause on the 6th day of July, 1910.

That upon retiring to the jury room to consider their verdicts in said cause the jury was possessed of a purported typewritten copy of the charge of the court read by the court to the jury in said cause; that said purported typewritten copy of the charge was read a number of times by the jurors and was argued, commented upon, construed and interpreted by them in arriving at their verdicts in said cause; that said jurors interpreted and understood said charge to be

peremptory and to mean that the jury should return a verdict against the claimant and defendant in said cause both upon the question of misbranding and upon the question of adulteration and that the jury interpreted said charge to instruct them to find peremptorily against said claimant and defendant upon both the charges of misbranding and adulteration; that had not said charge peremptorily instructed the jury to find against the claimant and defendant, the jury would not have found against said claimant and defendant and their verdicts in said cause would not have been in favor of the government.

HENRY C. CROW.

Subscribed and sworn to before me a notary public in and for said county and state this 20th day of July, 1910. My Commission expires May 6-1912.

(Seal)

ALFRED M. SEDDON,
Notary Public.

2638 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America
No. 285. vs.

Six Hundred and Twenty-Five Sacks of Flour, Lexington Mill & Elevator Company, Claimant.

Affidavit in Support of Motion for New Trial.

State of Missouri,
County of Jackson—ss.

R. R. Jenkins, of lawful age, being duly sworn, upon his oath states that he was one of the jurors composing the jury in the above entitled cause, which jury returned two separate verdicts in said cause on the 6th day of July, 1910.

That upon retiring to the jury room to consider their verdicts in said cause the jury was possessed of a purported typewritten copy of the charge of the court read by the court to the jury in said cause; that said purported typewritten copy of the charge was read a number of times by the jurors and was argued, commented upon, construed and interpreted by them in arriving at their verdicts in said cause; that said jurors interpreted and understood said charge to be peremptory and to mean that the jury should return a verdict against the claimant and defendant in said cause both upon the question of misbranding and upon the question of adulteration, and that the jury interpreted said charge to instruct them to find peremptorily against said claimant and defendant upon both the charges of misbranding and adulteration; that had not said

charge peremptorily instructed the jury to find against the claimant and defendant the jury would not have found against said claimant and defendant, and their verdicts in said cause would not have been in favor of the government.

R. R. JENKINS.

2639 Subscribed and sworn to before me a notary public in and for said county and state this 20th day of July, 1910. My commission expires May 6th, 1912.

(Seal)

ALFRED M. SEDDON,
Notary Public.

2640 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America
No. 285. vs.

Six Hundred and Twenty-Five Sacks of Flour, Lexington Mill & Elevator Company, Claimant.

Affidavit in Support of Motion for New Trial.

State of Missouri,
County of Jackson—ss.

J. C. Graves, of lawful age, being duly sworn, upon his oath states that he was one of the jurors composing the jury in the above entitled cause, which jury returned two separate verdicts in said cause on the 6th day of July, 1910.

That upon retiring to the jury room to consider their verdicts in said cause the jury was possessed of a purported typewritten copy of the charge of the court read by the court to the jury in said cause; that said purported typewritten copy of the charge was read a number of times by the jurors and was argued, commented upon, construed and interpreted by them in arriving at their verdicts in said cause, that said jurors interpreted and understood said charge to be peremptory and to mean that the jury should return a verdict against the claimant and defendant in said cause both upon the question of misbranding and adulteration, and that the jury interpreted said charge to instruct them to find peremptorily against said claimant and defendant upon both the charges of misbranding and adulteration; that had not said charge peremptorily instructed the jury to find against the claimant and defendant the jury would not have found against said claimant and defendant, and their verdicts in said cause would not have been in favor

2641 of the government.

J. C. GRAVES.

Subscribed and sworn to before me a notary public in and for said county and state this 20th day of July, 1910. My commission expires May 6th, 1912.

(Seal)

ALFRED M. SEDDON,
Notary Public.

2642 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,
vs.

Six Hunderd and Twenty-Five Sacks of Flour.
Lexington Mill & Elevator Company, Claimant.

Affidavit in Support of Motion for New Trial.

State of Missouri,
County of Jackson—ss.

Thomas T. Arnette, of lawful age, being duly sworn, upon his oath states that he was one of the jurors composing the jury in the above entitled cause, which jury returned two separate verdicts in said cause on the 6th day of July, 1910.

That upon retiring to the jury room to consider their verdicts in said cause the jury was possessed of a purported typewritten copy of the charge of the court read by the court to the jury in said cause; that said purported typewritten copy of the charge was read a number of times by the jurors and was argued, commented upon, construed and interpreted by them in arriving at their verdicts in said cause; that said jurors interpreted and understood said charges to be peremptory and to mean that the jury should return a verdict against the claimant and defendant in said cause both upon the question of misbranding and upon the question of adulteration, and that the jury interpreted said charge to instruct them to find peremptorily against said claimant and defendant upon both the charges of misbranding and adulteration; that had not said charges peremptorily instructed the jury to find against the claimant and defendant the affiant would not have found against said claimant and defendant with respect to the flour seized in this case and this affiant would not have voted
2643 in favor of the government.

THOMAS T. ARNETTE.

Subscribed and sworn to before me a notary public in and for said county and state this 20th day of July, 1910. My commission expires May 6, 1912.

(Seal)

ALFRED M. SEDDON,
Notary Public.

2644 Thereafter on said 22nd day of July, 1910, the claimant herein by and through its attorneys notified the plaintiff by and through its attorneys that an appeal would be taken herein on the part of defendant and claimant, to the United States Circuit Court of Appeals from the final decree herein, which notice was in writing and duly accepted by said plaintiff which notice was and is in the following words and figures, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,

vs.

Six Hunderd and Twenty-Five Sacks of Flour.
Lexington Mill & Elevator Company, Claimant.

To Leslie J. Lyons, District Attorney, and Pierce Butler, Special Attorney General, Attorneys and Proctors for Libelant, and Howard N. McCreary, Clerk of the District Court of the United States for the Western District of Missouri:

Sirs:

Take notice that the claimant and defendant above named hereby appeal by writ of error or appeal, or both, to the United States Circuit Court of Appeals for the Eighth Circuit from the final decree entered herein on July 6th, 1910.

Dated at Kansas City, Missouri, this 22 day of July 1910.

E. P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,

Attorneys and Proctors for Claimant and Defendant.

Copy accepted this July 22, 1910.

Leslie J. Lyons,
U. S. Attorney.

2645 Thereafter and on the 14th day of October, 1910, the following stipulation was made, signed and filed herein by the parties hereto at the suggestion of the clerk and upon the request of the court, as follows:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,

vs.

Six Hunderd and Twenty-Five Sacks of Flour.
Lexington Mill & Elevator Company, Claimant.

It is hereby agreed by and between the United States by Leslie J. Lyons, United States Attorney, and the said claimant and defendant by E. L. Scarritt, one of its attorneys, that the exhibits introduced in this case, and now in the custody of the Clerk of this Court, to-wit, all exhibits of bread and products of flour which are perishable, may be by the said Clerk destroyed, and in the event of a writ of error or appeal herein to any appellate court, this agreement shall not be prejudicial to any party by reason of the said exhibits not being certified up, but the same shall be considered as certified up, and substitutes therefor may be used if desired by either party in any appellate court.

Witness our hands this October 14, 1910.

LESLIE J. LYONS,
United States Attorney.

E. L. SCARRITT,
Attorney for Defendant.

Approved:

SMITH MCPHERSON, Judge.

2646 And thereafter, on October 14th, 1910, the court made, signed and filed and had duly entered of record herein the following order, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,

vs.

Six Hundred and Twenty-Five Sacks of Flour.
Lexington Mill & Elevator Company, Claimant.

Order.

It is hereby ordered that the time heretofore given by the Court to the defendant and claimant to call up motion for a new trial and to file its bill of exceptions herein, is hereby, for good cause shown, extended until January first, 1911.

2647 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,

No. 285. vs.

625 Sacks of Flour, Lexington Mill and Elevator Company,
Claimant.

Now comes the libellant on this 11th day of November, 1910, in open court and at the hearing of the objections to the judgment herein and the motion for new trial herein, and consents and prays that the judgment heretofore entered herein be modified as follows:

By striking out of said judgment the paragraph thereof commencing with the words, "It is further considered" and ending with the words "and that all of the same be destroyed by the United States Marshal", and by inserting in lieu thereof the following:

"It is further considered, ordered and adjudged that the flour seized herein and now in the custody of the United States Marshal for this district was transported in interstate commerce from Lexington, Nebraska, to Castle, in this district, in the State of Missouri, where the same was found after having been so transported, and that all the same was at all of the times mentioned in the pleadings herein and still is liable to be proceeded against in this district, and that the same was seized by process of libel for condemnation, while all of the same remained unsold and in original unbroken packages; that all of the flour so seized and now in the custody of the said Marshal was at all said times and still is an article of food and 2648 was and still is adulterated and misbranded within the meaning of the Act of Congress approved June 30, 1906, known as "The Food and Drugs Act", and that all thereof now remaining in the hands of the marshal be and the same is hereby condemned as being adulterated and misbranded within the meaning of said act, and that the same be disposed of by the Marshal by sale—not however, in any jurisdiction contrary to the provisions of this act or the laws of that jurisdiction—and that the proceeds thereof, less the legal costs and charges be paid into the Treasury of the United States; provided, however, that upon the payment of costs of such libel proceedings herein and the execution and delivery of a good and sufficient bond to the effect that such articles shall not be sold or otherwise disposed of contrary to the provisions of said act, or the laws of any state, territory or district, or insular possession, all of the same be delivered to the owner thereof, the Lexington Mill and Elevator Company."

And the said libellant consents that said judgment may be modified as respects the flour seized in any manner and to any extent desired by claimant herein, or its counsel, so long as said judgment shall not be made contrary to or inconsistent with the verdict of the jury herein.

The libellant objects to receiving in evidence the affidavits filed herein as follows, namely:

That certain affidavit purporting to be signed and sworn to by Bruce S. Elliott, A. E. Helm and E. L. Scarritt; that certain affidavit purporting to be signed and sworn to by juror Henry C. Crow; that certain affidavit purporting to have been signed and sworn to by juror R. R. Jenkins; that certain affidavit purporting to have been signed and sworn to by juror J. C. Graves; that certain affidavit purporting to have been signed and sworn to by juror Thomas T. Arnette. All of said affidavits bear date of July 22, 1910, and were filed herein; on 2649 the ground that all of said affidavits and each of them is incompetent, irrelevant and immaterial and inadmissible to impeach, modify, explain or define the verdicts and findings of the jury herein, and upon the ground and for the reason that the charge of the court to the jury herein was wholly in writing, and was read in its entirety by the court to the jury in open court and in the presence of counsel, after the court had handed to counsel of the parties respectively, a complete copy of such charge, and for the reason that such written charge was immediately upon the completion of the reading thereof by the court to the jury handed to the jury by the court or under its direction, in open court, openly, and in the presence of counsel for the parties respectively, and for the reason that no objection thereto was made by counsel on either side or by any other person.

Dated November 11, 1910.

LESLIE J. LYONS,
PIERCE BUTLER,
Attorneys for Libellant.

Nov. 11, 1910.

Indorsed: Filed by libellant. Filed November 11, 1910. Howard N. McCreary, Clerk.

2650 In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America,

No. 285. vs.

625 Sacks of Flour, Lexington Mill and Elevator Company,
Claimant.

Now comes the libellant by its attorneys, in open court at the hearing of the application of claimant for the settlement of a bill of exceptions herein, and objects to the settlement or allowance of the same upon the grounds and for the reasons following, that is to say:

(1) That that part of the proposed bill of exceptions which purports to be a transcript of the testimony offered, objections, rulings and proceedings at the trial, is not complete or in sub-

stance substantially true and accurate in many particulars, which counsel for the libellant are now unable to particularly specify herein, for the reason that they have not, nor has either of them, had any opportunity to examine the same or compare it with a transcript of such proceedings which was made at the time of the trial by the court reporter at the request of libellant, or to compare the same with the original stenographic notes taken by such reporter.

(2) That before this bill of exceptions be settled there be inserted therein immediately following the charge of the court to the jury a statement correctly and accurately setting forth the facts with respect to the manner of charging the jury, and among other things stating that the charge was wholly in writing; that it was read in its entirety to the jury, and 2651 that the court before reading it to the jury handed a copy thereof to counsel on each side of the case, and that immediately after concluding the reading thereof, in open court, in the presence of all the counsel, handed or caused to be handed, to the jury the very same charge and all thereof so read by the court to the jury, and that no objection thereto was made by the attorneys for the Claimant or by anyone else.

(3) That if a bill of exceptions be settled that Claimant's proposed exception No. 42 be not allowed.

That Claimant's proposed exception No. 43 be not allowed.

That the judgment or copy thereof contained in the proposed bill of exceptions be not included in any bill of exceptions.

That the Claimant's petition and motion for new trial contained in the proposed bill of exceptions be not allowed, or contained in any bill of exceptions.

That the motion in arrest of judgment contained in Claimant's proposed bill of exceptions be not allowed or included in any bill of exceptions.

That the affidavit of Bruce S. Elliott, A. E. Helm, and E. L. Scarritt be not allowed or included in any bill of exceptions.

That the affidavits of the four jurors, Henry C. Crow R. R. Jenkins, J. C. Graves and Thomas R. Arnette be not allowed or included in any bill of exceptions.

That the copy of notice that Claimant appeals by writ of error or appeal, or both, to the United States Circuit Court of Appeals from the final decree herein be not allowed or included in any bill of exceptions.

That the stipulation between the attorneys, dated October 14, 1910, approved by the Judge be not included in any bill of exceptions.

That the order of the court allowing defendant and claimant until January 1, 1911, to call up motion for new trial and file bill of exceptions be not included in any bill of exceptions.

LESLIE J. LYONS,
PIERCE BUTLER,
Attorney for Libellant.

Nov. 11, 1910.

Indorsed: Filed by libellant November 11, 1910. Howard N. McCreary, Clerk.

Thereafter, on the 11th day of November, 1910 the motions for new trial and in arrest of judgment herein having been submitted to the court, the same were by the court overruled, to which rulings of the court in overruling said motion for a new trial and said motion in arrest, and each of them, and each separate ground and reason therein contained and set forth, the claimant and defendant at the time excepted, and still excepts, which exceptions were allowed.

Thereupon it was ordered by the court that the claimant and defendant have until on or before the first day of January, 1911, to prepare and file its bill of exceptions herein, and that the time heretofore granted for said purpose be extended until that date; and that the amount of the supersedeas bond to be filed herein by the claimant and defendant is fixed at \$2,500.00, and the same may be filed with a responsible surety company as surety, on or before the date last above mentioned.

Wherefore, the claimant and defendant, the Lexington Mill & Elevator Company, prays that this, its bill of exceptions in four volumes to the ruling and holdings and decisions and judgments of the court may be allowed, signed and sealed and filed and made a part of the record in this cause, which is accordingly done this 11th day of November, 1910.

SMITH McPHERSON (Seal)
United States District Judge of the Western
Division of the Western District of Missouri at
Kansas City.

Approved Nov. 11, 1910. William G. Graves for Mr. Butler.

The Petition for Writ of Error, filed November 11th, 1910, is in words and figures as follows, to-wit:

In the United States District Court for the Western Division
of the Western District of Missouri.

United States of America
No. 285. vs.

Six Hundred and Twenty-five (625) Sacks of Flour, Lexington
Mill and Elevator Company, Claimant.

Petition for Writ of Error.

Now comes the Lexington Mill and Elevator Company, claimant and defendant herein, and respectfully shows to the court that at the April Term 1910 of this court, and on the sixth day of July, 1910, a verdict was rendered and a judgment and decree entered in this case for the government, and for the condemnation, confiscation and destruction of the six hundred and twenty-five sacks of flour seized herein, and for the costs of this case to be paid by the said claimant, the Lexington Mill and Elevator Company; that said claimant and defendant, the Lexington Mill and Elevator Company, within the time specially designated by order of court after the return of said verdict and the rendering of said judgment filed motions herein for a new trial and in arrest of judgment, and said motions were at the November Term of said court, to which term they had been regularly continued for hearing, and upon the 11th day of November, 1910, overruled by the court, to which action of the court in overruling said motions and each of them, the said claimant and defendant duly excepted at the time, and still excepts, which exceptions were allowed. There is
2655 attached hereto as a part hereof an assignment of errors; and there is also presented herewith a proper supersedeas bond.

Wherefore, the said claimant and defendant, the Lexington Mill and Elevator Company, prays that a writ of error be allowed to review said cause and said judgment and decree in the United States Circuit Court of Appeals for the Eighth Judicial Circuit.

ED. P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,

Attorneys for Claimant and Defendant.

W. C. Scarritt,
A. M. Seddon,
Of Counsel.

Allowed this 11th day of November, 1910.

SMITH McPHERSON,
United States District Judge for the Western
Division of the Western District of Missouri.

2656 The Assignment of Errors, filed November 11th, 1910, is in words and figures as follows, to-wit:

In the United States District Court for the Western Division of the Western District of Missouri.

United States of America

No. 285.

VS.

Six Hundred and Twenty-five (625) Sacks of Flour, Lexington Mill and Elevator Company, Claimant and Defendant.

Assignment of Errors.

Now comes the Lexington Mill and Elevator Company, a corporation, claimant and defendant in the above entitled cause, and presents this its assignment of errors as a part of its petition for a writ of error, and respectfully shows that the District Court aforesaid at the trial of the above entitled cause erred in each of the following rulings and holdings, and that error was committed by said court in said proceedings, in the following respects, and upon the following grounds and for the following reasons, to-wit:

1. Because the court was without jurisdiction to try this cause.

2. Because the Food and Drugs Act of June 30, 1906 is wholly invalid, unconstitutional and void in that it deprives the claimant of its property without due process of law, and is in violation of Article 1, Section 8, Paragraph 3 of the Constitution of the United States, giving to Congress the right to regulate commerce among the several states, and is also in violation of Article 10 of the Amendments to the Constitution of the United States, which provides that:

"Powers not delegated to the United States by the Constitution nor prohibited by it to the states are reserved to the states respectively, or to the people";

and also in violation of Article 9 of the Amendments to the Constitution of the United States which provides that;

"The enumeration in the Constitution of certain rights shall not be construed to deny or disparage others retained by the people."

2657 3. Because the said act known as the Food & Drugs Act of June 30, 1906 is wholly illegal, unconstitutional and void for the reason that said act is uncertain and indefinite in that said law does not define any standard of grade, quality or purity, and in this regard delegates legislative functions to the judicial department of the government and to the courts clothed with jurisdiction of cases of a civil or criminal

nature brought under said law in violation of Article 1 of the Constitution of the United States, which provides that:

"The legislative powers herein granted shall be vested in a Congress of the United States which shall consist of the senate and house of representatives."

4. Because said Food & Drugs Act of June 30, 1906, is wholly illegal and unconstitutional and void in that it deprives this claimant of the exclusive right to the use and enjoyment of a right or property conferred upon it by the government of the United States contrary to and in violation of Clause 8 in Section 8 of Article 1 of the Constitution of the United States which provides that;

"The Congress shall have power to promote the progress of science and useful arts by securing for limited times to authors and inventors (and their grantees) exclusive right to their respective writings and discoveries."

5. Because the action of the court, and the officers of the court, in seizing and condemning the flour of the claimant was and is contrary to and in violation of the rights of the claimant as secured to it by the provisions of article 4 of the Amendments of the Constitution of the United States which is as follows:

"The right of the people to be secure in their persons, houses, papers and effects against unreasonable searches and seizures shall not be violated, and no warrant shall issue but upon probable cause supported by oath or affirmation and particularly describing the place to be searched and the persons or things to be seized."

6. Because the seizure of said flour by the court and its officers was and is violative of the rights of the claimant herein as secured to it by the provisions of Article 5 of the Amendments of the Constitution of the United States, which provides that:

"No person shall be deprived of life, liberty or property without due process of law, nor shall private property be taken for public use without just compensation."

7. Because the Food & Drugs Act of June 30, 1906, is unreasonable, oppressive, confiscatory and void, and contrary in its provisions to the principles of a free government and a free people, as enunciated in our Declaration of Rights, in that it attempts to deprive a citizen of property that is harmless and wholesome, and in that it deprives a citizen of the pursuit of happiness and the lawful fruits of his own industry and labor.

8. Because the Food & Drugs Act of June 30, 1906, as construed by the court in this case is unreasonable, oppressive, confiscatory and absolutely void, and contrary in its provisions to the principles of a free government and a free people, as enunciated in our Declaration of Rights, in that it deprives this claimant of its property which, it is conceded in the charge of the court to the jury, is absolutely harmless and wholesome, and in that it deprives this claimant of the right to contract with reference to its own property and to enjoy the lawful fruits of its own capital and labor.

9. Because the Food & Drugs Act of June 30, 1906, is unreasonable, oppressive, confiscatory and void in that by its provisions, as construed by this court, it deprives a citizen of his property in the flour seized and the bread made therefrom, by reason of the claim that said flour and bread contains small or infinitesimal quantities of nitrites or nitrite reacting material which nitrites or nitrite reacting material is also found in flour and bread manufactured by natural processes, and which flour and bread are, and have been for ages, of universal use for consumption by the human race, and which flour and bread so used in either event are harmless and wholesome.

2659 10. Because the verdict and judgment in this case are unreasonable, oppressive, and confiscatory in that by reason thereof the claimant is deprived of its property which is harmless and wholesome, without compensation, and without any finding or judgment that it is a nuisance or in any way injurious to public health, or that it is in any way affected by nitrites or nitrite reacting material different from flour manufactured by former processes or cured by nature, which has been used for food by the human race since flour was first manufactured.

11. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect that:

"A substance known as nitrites or nitrite reacting material has been mixed and packed with the said flour so as to reduce and lower and injuriously effect its quality and strength, in these respects, among others, namely: that the capacity of the said flour to change and improve, as it would have changed and improved if aged and conditioned by natural processes, has been destroyed; that by direct action the elasticity of the gluten has been lessened and impaired, so as to injuriously affect the bread-making qualities of the flour; that by direct action other ingredients of the said flour have been injuriously

affected, so as to reduce, lower and impair its bread-making qualities."

12. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect that by the treatment of the flour by the Alsop Process,

"The said flour has been mixed, colored and stained in a manner whereby damage and inferiority is concealed in these respects, among others, namely: that the inferiority of freshness or newness an inferiority which is present in flour made from new wheat or in flour freshly milled from wheat that is either old or new, and an inferiority which manifests itself, among other things, in inferiorities of color, of elasticity of gluten, and of the quality of other ingredients which affect its value for bread-making purposes is thereby concealed; and that said flour has been caused to simulate the appearance of flour made from wheat which has been properly aged and conditioned by natural processes and of flour which has been properly aged and conditioned by natural processes, after being milled from wheat that is either old or new; and this treatment by the Alsop Process, as aforesaid, has concealed the inferiority of said flour, and has given it the appearance of a better grade of flour than it really is."

2660 13. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect:

"That the flour contained in said six hundred and twenty-five (625) sacks, and treated by the Alsop Process as aforesaid, was when milled, and now is, of a grade of flour inferior to a patent flour, and was when milled, and now is, of a grade of flour inferior to the grade known as finest quality of hard wheat; and that the said flour, inferior in these respects, has been caused to have the appearance of a patent flour and of flour made from the finest quality of hard wheat, and thereby the inferiority contained in said flour was and is concealed, and in other respects also the inferiority of said flour was and is concealed."

14. Because there is no substantial or probative evidence in this case to support the allegation of the libel herein to the effect:

"That by the treatment (Alsop) as aforesaid the said flour has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, which may render said flour injurious to the health."

15. Because there is no substantial evidence in this case to support the allegation of the libel herein to the effect that

the flour in question was misbranded within the meaning and intent of the Act of Congress of June 30, 1906.

16. Because the court erred in handing to the jury two verdicts in this case.

17. Because the court erred in instructing the jury to find the issues in accordance with two verdicts in this case.

18. Because the court erred in not charging and instructing the jury to find on each of the four charges or counts alleged in the libel herein.

19. Because the verdicts are inconsistent with each other.

20. Because the court erred in charging the jury peremptorily to find for the government.

21. Because the court erred in finding the facts in his charge to the jury in favor of the government, and in submitting the case under said charge and finding to the jury at all.

2661 22. Because the court erred in entering judgment upon the verdicts as returned by the jury.

23. Because the court erred in taxing the costs herein against the claimant, and in ordering execution therefor.

24. Because the court erred in entering judgment of condemnation or confiscation against the flour seized and ordering the same destroyed by the United States Marshall.

26. Because the court erred in permitting the jury while it was deliberating upon its verdict to have a copy of the charge of the court to the jury, which was in writing, and to consult and argue and interpret and construe the same for itself, all of which was without the knowledge or consent of the claimant or any of its attorneys.

27. Because of the misconduct of the jury in obtaining a copy of the charge of the court to the jury, which was in writing, and using and arguing and interpreting and construing the same while in session deliberating upon the verdict in this case, all of which was without the knowledge or consent of the claimant or any of its attorneys.

28. Because the jury in this case had while it was deliberating upon a verdict herein a copy of the charge of the court, which was in writing, and did use, argue, interpret and construe the same for itself without the presence or aid of the court, and without the knowledge of the claimant or any of its attorneys.

29. The knowledge of the fact that the jury had obtained a copy of the court's charge and used the same while deliberating upon its verdict, did not come to the claimant or any of its attorneys until after the verdict in this case had been rendered and the jury had been discharged.

2662 30. (The claimant and its attorneys ask leave to support the four preceding statements and allegations in this motion by proper affidavits to be hereafter filed.)

31. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The jury are instructed and charged that under the pleadings and all the evidence in this case your verdict must be in favor of the claimant or defendant herein upon all the counts or charges mentioned in the libel herein."

32. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The jury are instructed and charged that there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question has been mixed and packed with any substance so as to reduce or lower or injuriously affect its quality or strength, and upon that count or charge in the libel your verdict must be in favor of the claimant or defendant herein."

33. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question is mixed, colored, coated or stained in a manner whereby damage or inferiority is concealed.

34. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question contains an added poisonous or other added deleterious ingredient which may render it injurious to health."

35. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question has been misbranded within the meaning of the Pure Food Act."

36. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

2663 "That the burden of proving the allegations of the libel to be true is upon the prosecution and that before the jury can find against the claimant or condemn the property in question on any of the charges alleged in the libel they must find such charges to be true beyond a reasonable doubt and proven not only by a preponderance of the evidence on the part of the government but to the entire satisfaction of the jury."

37. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the truth of the allegations in the libel, that the flour in question has been packed and mixed with a substance known as nitrite or nitrite reacting material and that such substance has been so mixed and packed with the flour as to reduce or lower or injuriously affect its quality or strength, and unless you find that the truth of such allegations has been so proven you cannot find against the claimant or condemn the flour in question under that charge of the libel, and if you fail to so find your verdict upon such count or charge in the libel must be in favor of the claimant or defendant."

38. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the truth of the allegations in the libel, that the flour in question has been treated by the Alsop Process and that by such treatment the said flour has been mixed, colored and stained in a manner whereby damage and inferiority is concealed, and unless you find that the evidence does so prove that damage and inferiority actually existing in the flour seized in this case has been so concealed by its having been treated by the Alsop Process as alleged in the libel, you cannot find against the claimant or condemn the flour in question under that charge of the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant."

39. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the truth of the charge in the libel, that by the treatment of the flour in question by the said Alsop Process it has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, which may render said flour injurious to health:

And in this connection you are further instructed that it is incumbent upon the Government to prove that any such added poisonous or other added deleterious ingredients, if any contained in said flour, are of such a character and contained in the flour seized in such quantities, conditions and amounts as may render said flour injurious to health, and unless you find that all of such facts are so proven you cannot find against the claimant or condemn the flour in question under that charge in the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant."

2664 40. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"That the burden is upon the prosecution to prove the allegations in the libel that the flour in question was sold under a distinctive name of another article than itself and was labeled or branded so as to deceive or mislead the purchaser, and that the packages or sacks containing the flour in question, and the labels thereon, bear a statement, design or device regarding the ingredients or substance contained therein, which are false or misleading. And unless you find the truth of such allegations have been so proven you cannot find against the claimant or condemn the flour in question under this charge of the libel, and if you fail to so find your verdict upon such count or charge in the libel must be in favor of the claimant or the defendant."

41. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"If unbleached flour or flour that is naturally aged contains nitrites or nitrite reacting material, and that such nitrites or nitrite reacting material are naturally present in such flour in practically the same manner as in the flour seized, then the flour seized cannot be condemned and your verdict on the charge relating to added poisonous or other added deleterious ingredients must be for the claimant or defendant."

42. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The law exempts from its operation poisonous or deleterious ingredients occurring naturally in food products, including flour, and if the jury believe that the nitrites or nitrite reacting material is a substance normally and naturally occurring in usual and ordinary food products in amounts the same as or greater than is present in the flour seized, then such nitrites or nitrite reacting material in the seized flour are not poisonous or deleterious within the meaning of the law, and the flour seized may not be condemned."

43. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"If nitrites or nitrite reacting material are usually and ordinarily imparted naturally to the usual and ordinary food products which are continuously used for food consumption without injury to health, then the adding in lesser or no greater amounts of such nitrites or nitrite reacting material by harmless methods to other food products, including flour, is not adding poisonous or other added deleterious ingredients to such food products within the meaning of the law."

2665 44. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"The law does not prohibit the adding of nitrites or nitrite reacting material to flour, and a jury cannot find for the government or against the claimant, even if it be shown that nitrites or nitrite reacting material was added to the flour in question, unless they believe from a preponderance of the evidence that such addition, if any, rendered said flour injurious to the health of those who might consume the bread or other foods made from said flour."

45. Because the court erred in refusing and denying the request of claimant to charge the jury as follows:

"Flour is not eaten in the raw state and if the nitrites or nitrite reacting material present in flour bleached by this Alsop Process is substantially eliminated or greatly reduced during the process of bread making or other process of preparing flour for consumption, the jury may take this fact into consideration in determining as to whether or not the flour contains any substance which may render it injurious to health."

46. Because the court erred in overruling claimant's motion to strike from the files and from the record the amended libel of the government.

47. Because the court erred in admitting in evidence over the objections and exceptions of the claimant the four patents described as government exhibits numbered 1, 2, 3 and 4.

48. Because the court erred in admitting over the objections and exceptions of the claimant special portions of the patents, government exhibits 1, 2, 3 and 4.

49. Because the court erred in admitting and permitting over the objections and exceptions of the claimant the government's counsel to read certain portions of the patents, government exhibits numbered 1, 2, 3 and 4, and to inquire of the

witnesses as to whether such portions of said patents so read were true or not true.

50. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses as to the construction, operation, effect and result of the operation of processes for the bleaching of flour other than the Alsop process.

2666 51. Because the court erred in admitting over the objections and exceptions of the claimant incompetent, irrelevant, immaterial, illegal and inadmissible testimony in the case.

52. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the chemical or other effect upon flour of invented processes other than the Alsop Process.

53. Because the court erred in permitting over the objections and exceptions of the claimant the witness Sheppard to testify that his bleaching of flour was not with the Alsop Process but in his own laboratory by nitrogen peroxide gas made by himself.

54. Because the court erred in allowing the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan to testify to their conclusions as to whether or not the flour in question was injurious to health.

55. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Sheppard as to his conclusions of the amount of damage inflicted upon the flour in question by the bleaching, as being an invasion of the province of the jury.

56. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to their conclusions that the flour in question was injurious to health; that inferiority therein was concealed; that the quality and strength thereon was reduced; and that it was misbranded, as being an invasion of the province of the jury.

2667 57. Because the court erred in admitting over the objections and exceptions of the claimant the testimony

of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the manner and mode of milling in mills other than the mill of the claimant which milled and produced the flour in controversy.

58. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the character, strength, durability and other properties of pipes from mills other than the mill from which the flour in question was produced.

59. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the character and quality of flours other than those produced by the Lexington Mill and Elevator Company.

60. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the character and quality of bread made from flours other than the flour produced by the Lexington Mill and Elevator Company.

61. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the nature and effect of poisons generally, or poisons and materials other than those mentioned in the libel, namely nitrites or nitrite reacting material.

62. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Stengel, Folin, Boos, Child and Sloan as to the effect of poisons generally or other material other than nitrites or nitrite reacting material upon the human system.

63. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, Sten-

gel, Folin, Boos, Child and Sloan as to the effect upon the human system of 53 or 56 different poisonous substances introduced into one meal of victuals to be consumed by a human being.

64. Because the court erred in permitting, over the objections and exceptions of the claimant, the government's counsel to make long, irrelevant, leading and misleading statements and speeches in his questions or interrogatories to the witnesses, which were highly prejudicial to the rights of the claimant.

65. Because the court erred in permitting over the objections and exceptions of claimant the counsel for the government to base questions of witnesses upon wrongful and irrelevant assumptions.

66. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witnesses Sheppard, Winton, Mitchell, Kempster, Jones, Mann, Winslow, Ballard, Marshall, Wharton, Hulett, Acree, 2669 Stengel, Folin, Boos, Child and Sloan upon assumptions made by counsel for the government which were not based upon any of the issues in the case, or upon any of the material testimony, and which had no relevancy to the matter in controversy, and which were highly prejudicial to the rights of the claimant.

67. Because the court erred in making statements, arguments and giving evidence from the bench in the presence of the jury which were highly prejudicial to the rights of the claimant, by reason of which the claimant did not have a fair and impartial trial.

68. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Winton to the effect and in substance that upon the application of the Alsop bleaching process to the flour in his opinion nitrous and nitric acid were added to or mixed with the flour, as an invasion of the province of the jury, and as non expert testimony.

69. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Mitchell to the effect and in substance that the quality and strength of the flour was injured by the use of the Alsop Process, as being an improper conclusion of the witness.

70. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Kempster to the effect and in substance "that the pres-

ence in very minute quantities of nitrites in the air, articles of food, ham and vegetables being assumed, how can it be that the adding of nitrites in flour in such quantities as here suggested would be injurious to health", being a mere argument, non expert testimony, and invading the province of the jury.

71. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of 2670 the witness Mann as to the effect of bleached and unbleached flour on the plant known as drosera, and as to the effect on insects, and of the chart or exhibit exhibited and introduced in evidence with reference thereto, for the reason that such testimony was immaterial to any of the issues in the case and had no bearing upon the questions in controversy or upon the quality or strength, inferiority or superiority, or the effect of said flour upon the health of the consumer.

72. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Ballard to the effect and in substance that he saw a mill at Nashville that tested a bleaching apparatus that Nordyke and Marmon were experimenting with, "I don't know what it was, an agitator was shipped to them and a large jug, a kind of a carboy, but I always thought that was sulphuric acid, but don't know"; and that he had also experimented with fumes of a sulphur candle, for the reason that such testimony was clearly outside the issues of this case and had nothing to do with the flour in this case or the manner in which it was bleached, or what was contained in it.

73. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Ballard that he had seen the Williams Process and experimented with nitrocele, Dr. Wisner's gas, and was in a mill in Nashville where they experimented with a bottle that came there, but did not know what it was, for the reason that such testimony is not material to any of the issues in this case, a mere expression of the witness opinion, and entirely hearsay.

74. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Ballard to the effect and in substance that bleached or unbleached flour won't make as good a loaf of bread as the 2671 patent or the bleached flour, and that he has in his possession packages of unbleached and bleached flours which he offers in evidence, which flour was not bleached in any mill but was bleached in a chemical laboratory not by himself but by some one else, for the reason that the exhibits or samples referred to were bleached under conditions differ-

ent from those of the Alsop Process, and for the reason that the witness testified that the bleaching effect was different in different conditions, and for the reason that the government had 597 sacks of the flour seized which could have been used, but which was not used by it, for the purpose of ascertaining its constituent parts and its effect upon health.

75. Because the court erred in admitting in evidence over the objections and exceptions of the claimant the testimony of the witness Comstock as to the meaning of the term or brand "fancy patent flour", for the reason that the testimony shows that the term "fancy patent flour" has no particular meaning, is a mere name of a flour put upon the sacks by the miller, and that there is no standard for the same, and it is stating a mere conclusion of the witness.

76. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Gifford to the effect and in substance that the flour seized was not in his opinion really a fancy patent flour made from the first quality of hard wheat, for the reason that the witness was not qualified to answer the question, was an improper conclusion of the witness, because the witness knew nothing of the conditions of wheat in Nebraska and because no standard was shown for the term fancy patent flour.

77. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Graham to the effect and in substance that he bleached flour with an agitator and a little fan on top of the agitator a [jub] in which he put acid, for the reason that it has
2672 no bearing upon the issues in this case, has nothing to do with the Alsop Process, and throws no light upon the quality or ingredients of the flour in question.

78. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Wolaver to the effect and in substance that yellow berry wheat was not in fact first quality of hard wheat, for the reason that the witness was not qualified to answer, knowing nothing about Kansas or Nebraska wheat, and because it was a mere conclusion of the witness and not a statement of fact.

79. Because the court erred in admitting over the objection and exceptions of claimant the testimony of the witness Westerman to the effect and in substance as follows:

"Mr. Butler: Well, give us the result of your experience, comparing the baking qualities, for cracker making, of bleached flour and flour of like quality, unbleached?"

Mr. Smith: Object to this as incompetent, irrelevant and immaterial, and calling for simply a speculative opinion, as to relative merits, which, I think, falls under your Honor's ruling of the relative odor or a relative taste.

The Court: Oh, no; I think not. He may answer.

Mr. Smith: Exception.

Mr. Butler: Yes, tell us how it works, as compared with the other—flavor, odor and taste?

A. I made a test on 1200 pounds of bleached flour and 1200 pounds of unbleached flour, both at the same time, and, after the process of fermentation—

Mr. Helm: (Interrupting) Wait a minute. For the purpose of making an objection, I would like to ask the witness a question, whether or not these flours—

The Witness: (Continuing) After the process of fermentation of both flours, I found that the bleached flour had a dark grey color, and of an inferior flavor to that of the unbleached flour, which had a far superior color, and had the natural flavor of the wheat.

Mr. Helm: I desire to object to this question, the same as I was trying to object to the other, for the reason the witness hasn't shown where these samples of wheat and flour were obtained from—whether the bleached flour and the unbleached flour were produced from like qualities of wheat, by the same mill, or anything else. One is bleached, and the other is an unbleached, and they are not identified, and the testimony, so far, shows that there is a great difference, depending upon where the wheat is grown, and its quality, whether it is hard wheat or soft wheat.

The Court: I think that goes to the weight of it, and not the admissibility. He may answer.

Mr. Helm: "Save an exception."

2673 80. Because the court erred in overruling, refusing and denying the motion of claimant to strike out all of the testimony upon direct examination of the witness Taggart, to which ruling the claimant excepted, and still excepts, for the reason that it in no way pertained to the issues made by the pleadings in the case, and that in all his testimony he does not refer in any instance to the flour in question or to the bread made from the flour in question or to crackers made from the flour in question, and the testimony does not pertain to the flour in question or to the mill or process in question, and is wholly irrelevant and immaterial to any issue in the case.

81. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Albrecht to the effect and in substance that the flour in question is not a fancy patent flour, for the reason that there is no standard fixed or shown for such flour, and that it is a mere conclusion of the witness.

82. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Marshall to the effect and in substance that in his opinion a substance or substances were added to the flour in question by the treatment of the flour by the Alsop Process, for the reason that it is a mere conclusion of the witness without any knowledge as to the Alsop Process, and an invasion of the province of the jury.

83. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Boos to the effect and in substance that upon the assumption that bread made from the flour contained nitrites or nitrite reacting material to the extent shown by the fluid in the tube, exhibit 30, in his opinion there had been a poisonous substance added to the bread by the bleaching of the flour that was seized, for the reason that there is no evidence that the flour in question contained any nitrites to the extent of the
2674 fluid in exhibit 30, because the testimony is a mere conclusion of the witness, and is an invasion of the province of the jury to decide the case.

84. Because the court erred in admitting over the objections and exceptions of claimant the question to the witness Boos to the effect and in substance as follows:

"Q. Now, with respect to the adulteration of foods by the addition of poisonous and injurious substance, you may tell us whether or not in your opinion foods may be adulterated by such additions when the consumption of the same may not produce evidence of injury or poisoning manifesting itself by symptoms or apparent effect";

answered in the affirmative, for the reason that it is not responsive to any of the issues in the case, is a mere conclusion of the witness is a mere conclusion of law, and does not refer to the flour in question or the bread made therefrom.

85. For the reason that the court erred in admitting over the objections and exceptions of claimant the question to the witness Boos to the effect and in substance as follows:

"Q. Now, as to power to endure the eating of nitrites in bleached flour bread—would that be constant, or variable?"

for the reason that the witness had said that he didn't know anything about it, that he had never observed any effect or result from the eating of nitrites whatever, except in concentrated form; that it is a mere conclusion of the witness and a conclusion of law.

86. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Sloan to the effect and in substance as follows:

"Q. Now, Doctor, we want to take your opinion about a hypothetical question which I will ask, and in which I will ask you to assume certain facts. This is a proceeding by the Government to condemn as adulterated certain flour. You may assume to be true that the flour seized, complained of, was bleached by a process known as the Alsop process, which bleaching was affected by treating the flour with nitrogen peroxide gas mixed with atmospheric air to such an extent that the flour was substantially whitened; that upon such treatment the gas coming into contact with the flour and the moisture contained therein, there was formed in that flour two acids, nitric acid and nitrous acid, and there was added thereto poisonous substances, among them nitrites, organic and inorganic; you may further assume that this flour, and food stuffs made in whole or in part by its use, was by this treatment rendered less digestible than it would have been had it not been so treated; and you may further assume that upon the consumption of bread containing these nitrites so added an effect would be had upon the blood of the consumer depending in extent upon the quantity of nitrites consumed in the bread; that that effect is a chemical one, changing the hemoglobin of the blood to met-hemoglobin, and upon these facts I want to get your opinion as to whether or not the continued and customary use of bread made from such flour would be injurious to the health of consumers or tend to be so injurious?

Judge Scarritt: Just a moment. I object to that, if your Honor please, because the question does not include all the testimony necessary to present the hypothetical question to the witness; further, it is based upon the assumption of opinions of other witnesses, and third, that it invades the province of the jury, and calling for a decision of the issue that is involved in this case.

The Court: Objection is overruled.

To which exceptions were saved.

By Mr. Butler: Go on, doctor, you may answer.

A. In my opinion that would be the tendency.

Q. What would be the tendency, doctor?

A. To be deleterious to health.

Q. Upon what do you base that opinion, either in your experience or professional learning?

Judge Scarritt: I object to that because he has already said that he based it upon the hypothetical question.

Mr. Butler: Well, I mean the reasons for his opinion, of course it assumes the facts.

Judge Scarritt: For the reasons asked in the hypothetical question. When that is answered why as far as he is concerned that ends it. We object to it for that reason.

The Court: You may answer it; go ahead, doctor."

To which ruling exceptions were saved" to the whole of the testimony which is incompetent and immaterial for the reasons above stated, and for the reason that the question assumes that there are nitric acid and nitrous acid in the flour, of which there is no proof; that the flour contains organic nitrites, of which there is no proof; that the effect of nitrites so added to the flour upon the blood of the consumer would be to produce met-hemoglobin, of which there is no proof; and for the further reason that the witness in his cross-examination as follows:

"Q. If anybody is suffering from a poison by eating bread three times a day it is apt to be chronic, is it not?

A. Yes, sir.

Q. Now, what are the symptoms of chronic nitrite poisoning? A. That is what I don't know.

Q. Nobody else knows do they? A. No, sir."

2676 87. Because the court erred in refusing of his own motion to permit the jury at the request of the claimant to visit in charge of a bailiff one of the flour mills referred to in the evidence and located in the city in which the case was being tried, for the purpose of inspecting the same and ascertaining for themselves the arrangement and conduct of the process, the smell or lack of smell of the gas, the color or lack of color of the gas, and the practical effect it had upon the flour while the same was being bleached.

88. Because the court erred in sustaining over the exceptions of claimant the objection of the Government's counsel to the testimony of the witness Leflang to the effect and in substance as follows:

"Q. You may tell the jury whether or not the flour is rendered inferior by this process from what it was before, in your opinion as a miller.

The court sustained objections to which claimant saved exceptions.

Q. Could you ascertain by inspection whether a flour was inferior after the process from what it was before?

A. Yes, sir.

Q. Was this flour inferior after the process from what it was before? A. It was not."

objection of libellant sustained by the court on the ground that the witness has not shown himself to have any knowledge of this chemical change in the air as applied to the wheat, to which claimant saved exceptions; and for the further reason that this same witness was put upon the stand by the government and was shown to be experienced and qualified as a miller; and for the further reason that questions of the same character were asked by the counsel for the Government of his own witnesses and the objections thereto were overruled by the court.

89. Because the court erred in sustaining the motion of libellant to strike out the testimony of the witness Wesner to the effect and in substance as follows:

2677 "Q. How does the amount of nitrite reacting nitrogen in naturally bleached flour compare with that in commercially bleached flour?

A. Well, it would have been present to the same extent, and even more than what we find in the commercially bleached flour.

Mr. Butler: I move to strike out the answer as not responsive.

The Court: The answer is stricken out as not responsive."

90. Because the court erred in sustaining the objection of the government to the testimony of the witness Wesner to the effect and in substance as follows:

"Q. Is there any difference in the chemical reaction, between natural bleaching, and flour bleached by the Alsop process?

A. I have never been able to find and chemical difference between naturally bleached, and that bleached by the Alsop process.

Q. Now, how have you arrived at this conclusion. Will you tell us, and, if you have made any experiments, you may recite them.

A. Well, in this way: the coloring matter in flour is a distinct chemical body, and it reacts towards oxide of nitrogen, in a certain way. That is, when it combines with these oxides of nitrogen, it loses its yellow color, and it does not make any difference whether the oxide of nitrogen is introduced by the flaming electric arc discharge, or whether the oxides of nitrogen be taken up from the air, by this coloring matter. Now, you take, for example, corn starch. That contains a--

Mr. Butler: (Interrupting) Just wait a minute. I object to that as argumentative, and not responsive to the question asked.

The Court: Yes, just confine your answer to the question.

Mr. Scarritt: He is going over the ground that his (the Government) witness went over, if Your Honor please, and in the same way.

The Court: The objection is sustained.

Mr. Scarritt: Save an exception."

91. Because the court erred in sustaining the objection of the Government to the testimony of the witness Burgner to the effect and in substance as follows:

"Q. Now do you eat this bread from bleached flour yourself. A. I do.

Q. Do you use it in your family?

Mr. Butler: Oh, I think I will object to that as irrelevant.

The objection was sustained and exceptions saved.

92. Because the court erred in sustaining the objection of the Government to the testimony of the witness Edgecomb to the effect and in substance as follows:

2678 "By Mr. Elliott: Now, I will ask you to tell us what, in your judgment, is the effect on flour of bleaching it.

A. It whitens it in color, and ages the flour.

Q. And what? A. Ages the flour.

Q. Now, tell us what you mean by 'ages the flour'.

A. I mean that, before the use of the Alsop bleacher, we always carried large stocks of flour in the storehouse—

Mr. Butler: I object to that as not responsive to the question and move to strike it out.

The Court: That is not responsive, and is stricken out."

93. Because the court erred in his rulings, and remarks and arguments and statements before the jury at the trial which were to the effect and in substance as follows:

"Q. I will ask you if you have ever had experience in delivering, or giving bleached flour and unbleached flour to bakers?

A. Yes, sir.

Q. And if there has been any difference in the way that flour has been received by any bakers, you can tell what it is.

Mr. Butler: Wait a moment. I have understood it to be indicated that we could not go into what the customers said.

The Court: One of the issues in this case is, not whether the customers are satisfied, so much, because it is charged that customers are satisfied by fraudulent methods, to-wit, in the language of the statute: 'If it be mixed, colored, stained, and so forth, in a manner whereby damage or inferiority is concealed', is one of the things charged, and, secondly, where a poisonous ingredient has been inserted; so that the customer, the bread eater—not the bread seller, may be deceived; inferiority may be concealed. That is one of the very issues. A man might hold his trade, and his bakers be absolutely satisfied, but it would be in contravention of the Pure Food Law, if they are satisfied, because they have been deceived, and inferiority is concealed, just as I may get a coat, supposing it to be a Scotch import, and be perfectly satisfied with it, but, upon analysis or investigation, it might be American shoddy. So, how can you make that the test, Mr. Elliott, I may have been satisfied with the bread I was eating, if I knew nothing about the bleached flour process. The inferiority may have been concealed from the ordinary housewife or servant, or the purchaser for the family. They may be perfectly satisfied, but, if inferiority is concealed, or the poison injected, is it not in violation of the Pure Food Law, precisely as my ham that I buy may be loaded with preservatives, or maple sugar that I buy may smell and taste to me like maple sugar, but an analysis may show that it is made out of brown sugar, and yet, the purchaser in the one case is entirely satisfied. So, how are you going to get at it in that way?

Mr. Butler: Let me suggest the further point that it is merest conclusion and hearsay.

The Court: I am simply saying, now, that in my judgment, it is not the test, to show by the miller, or by the baker that, because—

Judge Scarritt: (interrupting): If your Honor please, we certainly must be permitted to object and except to the statements made by the Court at this time.

The Court: You may take exception, but nevertheless, I will make my statement, just as I understand the law, 2679 that, if it comes within either of these provisions of this statute, then this is contraband. Otherwise, it is not. I mean the two issues that I am now dealing with. There are two other issues. "If it be mixed, colored, powdered, coated, or stained, in any manner whereby damage or inferiority is concealed," then it is contraband, and in violation of the Pure Food Law, under which this trial is progressing.

Mr. Scarritt: Now, let me just suggest on that—

The Court: All right, Now, you go on and talk, Judge, and then I will go on.

Mr. Scarritt: I do not want to talk. I just want to suggest that this is one of the ways that your Honor has suggested, two or three times in this trial, that it goes to the question of the weight of the testimony, and not the admissibility of it, because it is one of the ways to determine whether there is inferiority there. People do not generally accept and take inferior things, without making some protest or kick, and this goes to that extent, to show that it is not inferior, that there is nothing concealed, that the superiority of the product is revealed, and not concealed. If everybody is satisfied with a certain thing, and so express themselves, either en masse, or as individuals, why that is testimony going to show that that article, or whatever it is, that meets the public approval, is a superior article, and not an inferior article.

Mr. Butler: That point is this: If the baker is satisfied with it, let us have him here, and we will ask him. If the house-wife is satisfied, bring her here, and we will ask her. But, to have a man who is a miller testify by mere hearsay that it does so-and-so, does not appear to me to prove anything.

Mr. Scarritt: Is not the chain complete. The miller affords to the dealer what the dealer necessarily requires for the public consumption.

Mr. Butler: No miller can testify that I am satisfied or dissatisfied as to the flour, without hearsay.

Mr. Scarritt: Yes, he can. It is a matter of notoriety.

Mr. Butler: The miller might want to cheat the person who buys the loaf of bread, and he may want the bleached flour, and still pray for it.

The Court: Just a moment, gentlemen. Here is what I am trying to get at: I have not expressed any views in this case, and do not intend to, as yet, at least, as to what the evidence tends to show: I mention that, in answer to the criticism of Judge Scarritt, but sometime, sooner or later, you have got to get to the issues here, as presented by the statute, two of which issues are: 'If it', in this case meaning flour, 'be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed'; if the verdict is solely under that, one result follows. Another issue that will be submitted to the jury later on, is: 'If it',—meaning flour,—'contain any added poisonous or other added deleterious ingredient which may render such article injurious to health'. Now, then, take it under the first one, particularly. Let me illustrate. I may buy or order at the cigar store a Havanna cigar, sold to me as a havanna cigar. I may think it is the finest cigar I have ever got in my life, but it turns out that it was native growth tobacco, one inferior to the other.

Mr. Scarritt: Not necessarily.

The Court: Now, Judge, I would like a good deal if I could talk once without interruption.

Mr. Scarritt: All right, I beg your pardon, your Honor.

2680 The Court: I may be satisfied in any supposed case—

I don't care what you take—I may be satisfied, and yet, if the inferiority has been concealed, then it is a fraud, and must like all frauds, the fraud is concealed, otherwise the man would not purchase it. The horse with the heaves or other disorder, is concealed from me; I buy him, would not buy him, but for the concealment of the fraud. Now, the point I am getting at here, is it for the miller to say that the trade is satisfied? That is what I am getting at. The trade may be or may not be satisfied by the very concealment of the inferiority. I am not saying it is inferior. Later on that will be submitted to the jury. Whether new wheat flour, concealed as old flour, sweated in the sack, sweated in the bin, gone through the natural processes, if that is inferior, if that inferiority is concealed by the process, then, is it not in violation of this statute?

Mr. Scarritt: We must object and except in the same way, Your Honor.

The Court: Sir?

Mr. Scarritt: I say, we must object and except, as we did before, to the remarks of the Court at this time.

The Court: Which particular remark?

Mr. Scarritt: The remark with reference to—

The Court (Interrupting): My reading that statute?

Mr. Scarritt: Reading the statute, and making the argument on this proposition.

The Court: Very well, I repeat, I have not expressed my views about that evidence in this case.

Mr. Scarritt: In this view, your Honor. Your Honor has said we must all keep our minds free from any conclusion, until we get through.

The Court: Yes, sir.

Mr. Scarritt: I think it is perfectly right.

The Court: Yes, sir. I have not expressed it, but I am trying to get back, because, sooner or later, this case is going to be submitted to the jury under the provisions of the statute, to which I will draw specific attention. If inferiority is concealed by the bleaching process, then what follows? If a poisonous gas—if it is poisonous—was injected in this flour, and the flour is made white, then, if that is harmful, and so forth, in the language of the statute, then what? Now I see you gentlemen are all anxious to make a speech, and I am not anxious to hear you this evening. Court is adjourned until tomorrow morning.

(Thereupon Court was adjourned until ten o'clock A. M., Wednesday, June 22nd, 1910.)"

Which rulings and remarks and statements and arguments were highly prejudicial to the rights of the claimant, and were not germane to the matter under consideration at the time.

94. Because the court erred in his ruling, and remarks, and arguments and statements before the jury at the trial which were to the effect and in substance as follows:

"The Court: When we adjourned last evening, we were talking about certain matters. I do not know whether there was anything further counsel desired to say about that, or not?

If there is, I will hear you, briefly.

2681 Mr. Elliott: If your Honor please, I do not want to weary you with this talk, but I merely want to make this observation, because I think my question was not understood. As I understand it, Mr. Butler has been endeavoring to show that, if a new flour is bleached—that is, flour from new wheat, we will say, is bleached and whitened in color, and, if it possesses, notwithstanding the bleaching, all the properties of a new flour, and is unworkable, a person might buy that

flour, thinking it was a naturally aged flour, and it had the properties of naturally aged flour and be deceived. Well, now, let us pass that for a minute. Now, I have been endeavoring to show by this witness that, in his judgment, flour from a new wheat that is bleached, not only is lightened in color, but that its quality is improved, and that it is aged and conditioned. That is what he testified. Now, it seems to me it is germane to that, to show the difference in the way flour has been received by his customers, whether it was unbleached or bleached.

The Court: Who do you mean by customers?

Mr. Elliott: The man he has sold it to—the baker, for instance. If he has sold them flour, bleached and unbleached, has there been any difference in the way they have been received, and if so, what? That is what I have been trying to bring out.

Mr. Butler: The last question is: 'If there has been any difference in the way that flour has been received, by any baker, you can state what it is'. Now, maybe the baker paid less for it [that] he would have paid if it had been a naturally aged flour. Maybe it is a matter of adjustment, commercial considerations, and, in any event, it is purely hearsay for him to testify as to the states of mind of a baker, as to this. Let the bakers tell how this flour does. Let them say what kind of bread it makes. It is not for a miller to get off, in sweeping remarks, that it gives satisfaction to bakers, or somebody else. Let somebody else who has used it, who knows, say, and some one we can cross-examine. It won't do to bring witnesses here, who do not know anything, and let them give their conclusions, that we cannot cross-examine—matters of hearsay. That might do in a town meeting, but it won't do to try a law suit that way.

The Court: Now, let me say a few things. No one doubts the importance of these matters, and I am not speaking only of the present question. So far as that one question is concerned, it may or may not be pivotal, but, on the 30th day of June, 1906, four years ago, congress, with the approval of President Roosevelt, carried this measure forward into a statute known as the Pure Food and Drugs act. That is the statute under which we are proceeding, and under which this trial is being conducted. That congress had the authority and power to so enact, I have already adjudicated in another forum, in part, the same parties, perhaps, and, in part, independent parties, but I have an abiding conviction on that question, as expressed in my opinion. I am not speaking as to the reasons for my opinion, but the conclusions. I could better that opinion, I think, if I had the time in which to do it, but I have seen no reason whatever to modify my conclusions as to an

interstate shipment like this, from Lexington, Nebraska, to Castle, or Greencastle, or whatever it may be, in Missouri, being an interstate shipment, gives this court jurisdiction to hear and determine the question as to the particular flour now under seizure. This pure food statute seems to me is for the benefit of the consumer, in this case the bread eater, which comprises the entire human family. This statute is not for the benefit of the baker, or the middleman, nor for the miller, nor for the wheat grower. It is for you, and it is for me, and every one else who eats bread, and probably we all do, three times a day, and, quite likely, divided into three grand divisions. One is with reference to drugs and medicines, in which a distinct, specific test is made. With that, we are not now dealing. The second division is with reference to confectionery eaten, perhaps by all children, and quite a percentage of adults. That fixes a specific test in not what the confectionery shall contain, but what the confectionery shall not contain. The Third and last division, being the one under which we are now proceeding, is with reference to food stuffs, including flour made up into bread, pastry, and so on. Most obviously there could be no specific test made with reference to foods, and the more one thinks about that, the more strongly it grows on him, and it necessarily follows that congress was compelled to use some general terms in the statute. One is with reference to misbranding. To that, for the present, I shall not allude. But this statute refers in this way, aside from the interstate shipment proposition, which is a question of law 'that, for the purpose of this act, an article shall be deemed to be adulterated', passing by drugs and confectionery, 'in the case of food, first if any substance has been mixed and packed with it, so as to reduce or lower, or injuriously affect its quality or strength'. The pleadings under that clause, present an issue that is now being tried. Passing by the second and third, as not being germane to any inquiry here, the fourth 'if it be mixed'—it meaning flour—'colored, powdered, coated, or'—disjunctive 'or'—'stained in a manner whereby damage or inferiority is concealed'. Now, under that, these pleadings present a distinct issue. Fifth 'If it'—meaning flour, in this case—'contain any added poisonous, or other added deleterious ingredient, which may render such article injurious to health'. Now, there are the four issues we are trying. First, with reference to misbranding, that I have passed to one side for the time being. Here are the other three.

Mr. Scarritt: Is your Honor charging the jury, now?

The Court: No, sir. I am giving my reasons, being an explanation of my ruling. Why that question, Judge, I do not understand.

Mr. Scarritt: Well, it seems to me it does not appertain to the ruling, as to whether these bakers shall testify as to what effect this flour has. They are part of the community. You cannot exclude them as a part of the community. They are consumers, as well as purchasers.

The Court: My belief is, this statute is for the benefit and protection of consumers.

Mr. Scarritt: I agree with you, and they are consumers. We are all consumers, but it seems to me it is unnecessary at this time, if Your Honor please, with all due regard and respect for your Honor, I have to go over the whole ground of this pure food law. That is what occurs to me. It is anticipating the charge to the jury. I say that, because I think that it is my duty to say it in the interest of my clients.

The Court: I was trying to analyze the issues, and what leads to it.

Mr. Scarritt: I understand, your Honor.

2683 The Court: Now, there two theories here with reference to the poison. One, by the government, and one by the defendant, concerning which I now have nothing to say, but will, later on, in my charge to the jury. But the question now before the court goes to clause four, which I repeat 'If it—meaning flour in this case—be mixed, colored, powdered, coated or stained, in a manner whereby damage or inferiority is concealed'. Concealed from whom? That is the ultimate question that I am to charge this jury concerning. Now, any evidence on the part of the government that tended to show that inferiority of flour is concealed by the bleaching process, was admissible. Any evidence tending to show that inferiority of flour is not concealed by the bleaching process, is legitimate evidence for the claimants to offer. Now, I am not saying but what you can take it, step by step, and show that the baker is not deceived, or that the inferiority, if there is an inferiority—and that is a question of fact for the jury—I am not saying but that you can show by the baker that the inferiority, if any, is not concealed from him, the baker. The question is, is that enough? I am not now saying. I will cover that in my final charge to the jury. I am not charging the jury here at all, yet. I am giving the reasons for the analysis I have made in my own mind, of this statute. Therefore, I think you can take, one step at a time, show that if there is any inferiority, that such inferiority is not concealed from the baker, but the question remains, will that be enough? I shall wait for further arguments on that. But I have no doubt in my own mind, at this time, subject to any change of opinion, about it, that this

statute is for the benefit of the consumer. Therefore, I will allow this question to be answered.

Mr. Scarritt: If your Honor please, we desire to except to the remarks of the court in making the ruling on this question, and save our exceptions.

The Court: Very well."

Which ruling and remarks and statements and arguments were highly prejudicial to the rights of the claimant, and were not germane to the matter under consideration at the time.

95. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Boettler to the effect and in substance as follows:

"Q. Is there such a thing as eggs preserved with borates?

Mr. Scarritt: We object to that as immaterial.

The Court: Go on.

A. There are preserved eggs, but I don't know what they are preserved with.

Q. Did you ever try preserved eggs, to make cake, with unbleached flour? A. Undoubtedly.

Q. Now, I would like to know where you got those eggs, and how they were preserved.

Mr. Scarritt: We object to this line of testimony, if Your Honor please,—immaterial.

The Court: He may answer.

2684 96. The court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Sayre to the effect and in substance that the addition of prussic acid to cantaloup and to coffee and to shredded wheat biscuit and to bacon eaten for breakfast would be injurious to health; for the reason that it has no relation to any of the issues in this case and was made for the purpose of misleading the jury and prejudicing the rights of the claimant herein.

97. For the reason the court erred in sustaining the motion of libellant's counsel to strike out the testimony of the witness Abbott to the effect and in substance that deception as to the grade of flour could be practiced as well with the unbleached flour as with the bleached flour.

98. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Teller to the effect and in substance as follows:

"Q. By Mr. Butler: Is a carload of corn a poisonous substance? A. Taken in quantity it would be.

Q. Yes, all right. How is this NOCl shipped out, in what commercial volume does Professor John A. Wesener ship that out to millers to bleach flour? A. I never kept track of that.

Q. Have you seen the carboys there like the compressed soda water drum? A. I have seen some cylinders, yes.

Judge Searritt: We object to that as clearly outside of the issues in this case. About nine-tenths of the testimony that has been introduced here is on other things that have no more to do with this flour in question than the man in the moon.

The Court: Objection overruled.

Exception saved.

Q. Now, is a whole drum full of nitroxyl chloride a poisonous substance? A. In concentration it is poisonous.

Q. As shipped out is it a poisonous substance?

The same objection by claimant.

The Court: He may answer.

Exceptions saved."

99. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Albert to the effect and in substance as follows:

2685 "Q. Don't you think it would be a poor policy to put nitrites in baby's food regularly so the mother could not keep it out. I ask you if it would not be poor policy to purposely add nitrites like amyl nitrite, for example, to a baby's foods regularly and habitually and to such an extent that neither baby nor parent could avoid giving the nitrite carrying food to the baby? That, I think, is within the fields of pathology.

Counsel for claimant objected to the question as incompetent, irrelevant and immaterial; invading the province of the jury; and a wrongful conclusion of the witness because there is no amyl nitrite in this flour, improper cross-examination, and simply for the purpose of prejudicing the jury.

The Court: He may answer.

Exceptions saved."

100. Because the court erred in permitting over the objections and exceptions of claimant the question to the witness Webster to the effect and in substance as follows:

(By Mr. Butler)

"Q. And cream, now then we will assume that the milkman for the purpose of making his cream or milk stand up a little longer, it is artificial aging he will call it for short, put in a little formaldehyd but so small an amount that the most feeble person in the community might take the milk in ordinary consumption as milk is consumed and that no doctor whether skilled or pharmacologist or toxicologist could observe any harmful effects on the public or the person, whoever it was, from the formaldehyd, in such case from the standpoint of health would you approve or would not disapprove of the addition of the formaldehyd, am I right?"

for the reason that it is absolutely immaterial to any of the issues in this case, and introduced only for the purpose of prejudicing the jury.

101. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Webster to the effect and in substance as follows: That the adding of formaldehyd to milk, sulphates to syrup and borax and coal tar dye to butter, and other ingredients to other substances, and eaten as a breakfast would be poisonous, for the reason that it is immaterial and of no relevancy to any of the issues in the case, and is introduced for the purpose of misleading and prejudicing the jury: and in the same connection also objected and excepted to the remarks of the court to the effect and in substance as follows:

"Q. The Court: Now, Mr. Butler has commenced with the oat meal and cream with some poison in it, but not
2686 enough of itself to hurt, and then he takes pancakes with butter and syrup, then he takes eggs, and he takes bacon, now then, and coffee, now then he finally quits, he finishes all his breakfast, or turns to take some bread and butter, I don't know what else. Now when you get through with an ordinary meal for a healthy man, with a good appetite, the question is what are you going to have when you get through.

Judge Scarritt: I want to make an objection to the question as stated by the court and by the gentleman on the other side, as absolutely irrelevant, incompetent and immaterial to any of the issues in this case, and involves an analysis of every ingredient in every piece of food that has been mentioned, and the action or comparative action of one poison upon another, or one ingredient upon another, and is an unfair question and an unfair illustration, as applied to the issues in this case with reference to this bleached flour.

The Court: Objection is overruled."

Exceptions saved.

102. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Webster to the effect and in substance as follows:

"Mr. Butler: Now, if, at the hearing of the bleached flour case in Washington, November, 1908, he (Dr. Wesner) stated in substance:

Mr. Elliott: Now, just in regard to that. We object to this, your Honor, because Doctor Wesner is not here, and there is no possible way of knowing whether that is what Doctor Wesner said, or not.

Mr. Butler: I am going to ask him about his testimony. That is what he said, and you have the transcript, and you will find that at page 277 of the transcript furnished you of that hearing, when you, yourself, were there, taking part in the hearing.

Mr. Scarritt: It don't make any difference who was there. This kind of testimony is not admissible. It is purely hearsay, not an impeaching question, because he didn't ask Doctor Wesner, when he was here, if he said that, and we object to it for those reasons.

The Court: Objection overruled."

Exceptions saved. The question was answered.

103. Because the court erred in admitting over the objections and exceptions of claimant the testimony of the witness Webster to the effect and in substance as follows:

"Mr. Butler: But you would say that it was wicked, and sinful, and wrong to add formaldehyd to clean milk that was being fed to a baby—pure, fresh milk? You would say that was dangerous to the baby's health, and it would be wicked and wrong to do it, wouldn't it?

Mr. Scarritt: We object to that form of question.

The Court: He may answer.

104. Because the court erred in refusing and denying the claimant the right to introduce upon the examination of 2687 the witness Cross the exhibit numbered 281 of gas obtained by him at the Alsop Process mill, mentioned in evidence, and for refusing to allow such exhibit number 281 to be substituted for exhibit number 280, and in the same connection the court erred in the statements and remarks made by him in reference to such exhibits, which were to the effect and in substance as follows:

"Judge Scarritt: We are perfectly willing to let the jury go and see it themselves.

The Court: Judge Scarritt, no use of saying, as has frequently been said, for the jury to go and see it for most obvious reasons to me as a lawyer, for the reason that it cannot be made of record; there is no statutory authority therefor either federal or state that I know anything about. There is nothing for the jury to see if they go there other than what has been described here twenty-five or fifty times, and it will not do for you to say that I am keeping out any evidence, or anything that would enlighten the jury; it would not enlighten the jury, and it could not be made of record, if I did allow them to go.

Judge Scarritt: We object and except to the remarks of the court."

105. Because the court erred in admitting over the objections and exceptions of the claimant the testimony of the witness Lecount and the witness Schwitzer as to the effect of the introduction of 55 poisons in the food of an ordinary human being in the three meals consumed by such being in a day, as being entirely irrelevant and immaterial to any of the issues in the case.

106. Because the court erred in admitting over the objections and exceptions of the claimant the testimony on rebuttal of the witness Acree for the reason that the same was not proper rebuttal testimony.

107. Because the court erred in not submitting all of the issues in the case to the jury in his charge.

108. Because the court erred in submitting only two forms of verdict to the jury.

109. Because the court erred in not submitting to the jury a form of verdict upon each of the four charges or counts contained in the libel in this case.

2688 110. Because the court erred in charging the jury peremptorily to find for the Government upon all the charges in the libel.

111. Because the charge of the court to the jury has the effect of confiscating claimant's property without authority of law.

112. Because the court's charge to the jury is inconsistent and contradictory.

113. Because the court's charge to the jury does not present all the issues under the evidence.

114. Because the court in his charge to the jury commented upon and emphasized portions of the testimony and evidence favorable to the Government to the exclusion of testimony and evidence favorable to the claimant.

115. Because the court erred in submitting to the jury in its charge inconsistent issues of misbranding and adulteration.

116. Because the court erred in its charge in peremptorily instructing the jury to find the issues for the Government upon both the charge of misbranding and of adulteration, which are inconsistent and contradictory.

117. Because the verdicts of the jury are inconsistent and contradictory.

118. Because the verdicts of the jury as to misbranding and adulteration cannot stand together.

119. Because the verdict and judgment are contrary to law.

120. Because the verdict and judgment are contrary to the weight of the evidence.

121. Because the verdict and judgment are contrary to the law and the evidence.

122. Because upon the whole evidence in this case the
2689 verdict and judgment should have been for the claimant and not for the Government.

123. Because the court erred in instructing and charging the jury as follows:

"The statute under which this proceeding was brought and the case now being tried is an enactment of the Congress of the United States approved by the then President June 30th, 1906 (four years ago). This statute as to its validity is challenged by the claimant herein. But with that question you have no concern other than to observe it, because the Court holds that the Congress of the United States with the approval of the President had the power under the Constitution of the United States to enact the statute that was enacted and under which we are proceeding, and the Court holds and so directs you that the statute is a valid enactment, and to be enforced in any and all cases where the evidence and the facts come within the wording of the statute."

124. Because the court erred in instructing and charging the jury as follows:

"It will be observed that the statute deals with drugs, medicines, liquors and foods. A part of the statute is with reference to drugs, medicines and liquors, and likewise con-

fectionery, but with which in this case we are not concerned except as the same has a bearing with reference to foods."

125. Because the court erred in instructing and charging the jury as follows:

"While you are the sole judges of the facts and of the testimony, and what weight shall be given thereto regardless of expressions of opinion by me, it is my belief that I can be of substantial aid to you in stating some facts which in my opinion are so well established by the evidence as that you ought to have but little or no argument with reference thereto, and take the same as established facts."

126. Because the court erred in instructing and charging the jury as follows:

"It is also an established fact in the opinion of the Court that the flour seized and in question was made from wheat of a 1909 crop grown in the State of Nebraska and known by the name of No. 2 Turkey Wheat, and that the wheat was ground at the claimant's mill at Lexington, Nebraska, on the night of March 31st, 1910 and shipped the next day to the said Terry at Castle, Missouri, by whom it was received in about seven days."

127. Because the court erred in instructing and charging the jury as follows:

"It is also an established fact in the opinion of the Court that the wheat from which the flour was made contained a percentage of what is called Yellow berry wheat. The witness, Mr. Tucker, the head miller of claimant, testified that 2690 the yellow berry was about or approximately ten to twenty-five per cent of the entire amount of the entire wheat used to make the flour in question that has been seized in this case, and the testimony of the other millers in Nebraska and Kansas shows that the wheat called 'yellow berry' is frequently, indeed commonly found mixed with turkey wheat as it is grown in those states, and that the percentage of such yellow berry varies frequently running higher than fifty or seventy-five per cent of the turkey wheat produced in various places and communities in said states."

128. Because the court erred in instructing and charging the jury as follows:

"It appears that nitrogen-peroxide gas is—in concentration—a brownish or yellowish gas heavier than atmospheric air, of offensive odor, corrosive in character, and a poison and deleterious substance, and if taken by a human being in sufficient quantities will produce poisonous action and death."

129. Because the court erred in instructing and charging the jury as follows:

"It appears that when nitrogen peroxide gas is brought into contact with water or moisture, there is by chemical change produced nitrous acid and nitric acid in equal quantities, and it also appears that each of these acids so produced is a poisonous and deleterious substance which if taken by a human being in sufficient quantities will produce poisonous action and death."

130. Because the court erred in instructing and charging the jury as follows:

"It appears that nitrous acid readily combines chemically with other substances such as are contained in wheat flour and thereby forms nitrites of various kinds, depending upon the character of the substances with which the acid chemically combines."

131. Because the court erred in instructing and charging the jury as follows:

"It appears that such nitrites as may be formed by the introduction of nitrous acid into flour are poisonous and deleterious substances and that if taken by a human being in sufficient quantities, will produce poisonous action and death."

132. Because the court erred in instructing and charging the jury as follows:

"It appears that nitric acid readily combines chemically with other substances such as are contained in wheat flour, and thereby forms nitrates of various kinds depending upon the character of the substances with which the acid combines."

133. Because the court erred in instructing and charging the jury as follows:

2691 "It is not incumbent on the government to show that the allegations of the amended libel in a case like this are true beyond a reasonable doubt. Proofs beyond a reasonable doubt are only exacted in a criminal case, and this is not a criminal case within the meaning of that rule, but it is an action in the nature of a civil action."

134. Because the court erred in instructing and charging the jury as follows:

"It is incumbent on the government to prove that the flour seized was adulterated and misbranded in some respects or particulars alleged in the libel. But it need not prove that the flour was adulterated or misbranded in all of the respects and

particulars alleged. If it appears from the evidence in this case that the flour was adulterated in any respect or particular alleged, then you must find for the government that the same was adulterated, and if it appears from the evidence that the same was misbranded in any respect or particular alleged, then you must find for the government that the same was misbranded."

135. Because the court erred in instructing and charging the jury as follows:

"I charge you that if the treatment of this flour by the Alsop process for the purpose of bleaching and whitening resulted in any injury to the capacity of the flour to change and improve as it would have changed and improved if aged by natural processes, that your finding must be for the government that the flour is adulterated."

136. Because the court erred in instructing and charging the jury as follows:

"On the second branch of this particular issue, I charge you that if you find from the evidence that by the direct action and as a result of the treatment of this flour by the Alsop process the elasticity of the gluten has been lessened or impaired so as to injuriously affect the bread-making qualities of the flour, that your finding must be for the government that this flour is adulterated."

137. Because the court erred in instructing and charging the jury as follows:

"On the third point of this particular issue, the government claims that the treatment of this flour by the Alsop Process caused substances known as nitrites or nitrite reacting material to be mixed and packed with the flour so as to reduce, lower and impair its bread-making qualities, and so as to render the same injurious to health. If you shall find from the evidence that the flour seized was by such treatment so injured, your finding must be for the government that this flour was adulterated."

138. Because the court erred in instructing and charging the jury as follows:

2692 "And it further appears that by the lapse of time and aging and conditioning by natural processes wheat flour will improve for a period of time, stated to be from two to four months, or thereabouts, and that such improvement increases the value of the flour and makes it lighter in color; and it further appears that this bleaching process makes the fresh-

ly milled wheat flour appear to be like and to simulate the appearance which that same flour will assume after natural aging and conditioning. And it further appears that this flour when seized was not naturally aged or conditioned, but was newly milled flour."

139. Because the court erred in instructing and charging the jury as follows:

"On the second branch of this particular issue, I charge you that if the treatment by the Alsop Process has given to this flour the appearance of a better grade or quality of flour than it really is, you should find for the government that it is adulterated."

140. Because the court erred in instructing and charging the jury as follows:

"And upon the third branch of this particular issue, I charge you that if you should find from the evidence that this flour is of a grade of flour inferior to patent flour or is a flour inferior to flour made from the first quality hard wheat, and that bleaching by the Alsop Process has caused it to have the plained to you in this charge—or the appearance of a flour appearance either of a patent flour—as that term will be ex—made from the first quality of hard wheat, then you must find for the government that this flour is adulterated."

141. Because the court erred in instructing and charging the jury as follows:

"The substance of the charge found in the amended libel is that by the treatment of the flour by the Alsop Process it has been caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to-wit: nitrites, nitrite-reacting material, nitrogen peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances."

142. Because the court erred in instructing and charging the jury as follows:

"On the other hand, it is the claim of the claimant that even though the flour contain added poisonous or other added deleterious ingredients, it may not be condemned unless it shall further appear that such added substances are in such quantity that the flour shall be thereby rendered injurious to health."

143. Because the court erred in instructing and charging the jury as follows:

"And in enforcing the statute in proper cases the fact that it will subject the millers to some expense, or the fact, if it
 2693 be a fact, that it will enable the millers to market their flour more readily or at a better price, is entitled to no consideration and will receive no weight at your hands."

144. Because the court erred in instructing and charging the jury as follows:

"The word 'poisonous' as an adjective conveys a descriptive meaning and is used in a qualitative sense, and not in a quantitative sense. That is, it refers to the kind of substance, and not to the quantity of the substance. This idea or meaning is further emphasized and rendered more certain by the qualifying clause 'which may render such article injurious to health.' It does not say 'Which does render such article injurious to health,' but manifestly it was the purpose of Congress to include in this distinction all ingredients of a poisonous character to which in their essential nature, might be ascribed the tendency to affect health injuriously."

145. Because the court erred in instructing and charging the jury as follows:

"It is not conceivable that the Congress of the United States, when it passed this act, intended that producers and vendors might continue to add poisonous and other injurious substances to food so long as the quantity added was not sufficient to produce observable poisonous or injurious effects upon the health of consumers, nor is it conceivable that Congress intended to require that the government before proceeding to condemnation of an article of food as adulterated must prove that it contains added poisonous or other added deleterious ingredients in such a quantity as would render such article injurious to health. It is known to every one that there is no method of ascertaining or measuring the effect of the consumption of such substances in food upon the public health or upon the health of any particular individual."

146. Because the court erred in instructing and charging the jury as follows:

"It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances."

147. Because the court erred in instructing and charging the jury as follows:

"The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables,

and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the government need not prove that this flour or food stuffs made by the use of it would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case."

148. Because the court erred in instructing and charging the jury as follows:

2694 "The flour seized in this case is an article of food within the meaning of the Act of Congress."

149. Because the court erred in instructing and charging the jury as follows:

"It is admitted that this flour was treated by the Alsop Process for the purpose of bleaching or whitening, and the evidence establishes that nitrogen-peroxide gas was employed for that purpose and further establishes that that gas, nitrous acid, nitric acid, and nitrites of the kind which may be produced by such treatment are poisonous and deleterious substances, and that these substances when taken in sufficient quantities will produce poisonous action or death."

150. Because the court erred in instructing and charging the jury as follows:

"It appears from the evidence in this case that the bleaching process imparts and adds to flour substances referred to in the testimony as nitrites or nitrite-reacting material, and such substances were imparted to the flour seized in this case by the bleaching process. It further appears from the evidence that such substances so imparted or added to this flour are qualitatively both poisonous and deleterious, that is to say, that these substances are of a poisonous and deleterious character."

151. Because the court erred in instructing and charging the jury as follows:

"It is well known that wheat flour is not eaten raw. There is evidence in this case that tends to show that during the process of making bread nitrites or nitrite-reacting material contained in the flour is lessened and may be eliminated under some circumstances, but it is also well known that wheat flour is used for the making of other articles of food—biscuits, dumplings, pastry, cake, crackers, gravy, and perhaps other articles of food, which may be consumed by all classes of persons, the young, the old, the sick, the well, the weak, and

the strong; and I charge you that it is right for you in reaching your verdict to take these facts into consideration together with all the other proven facts and circumstances in the case.

152. Because the court erred in instructing and charging the jury as follows:

"With reference to the issue as to misbranding, the same divides itself under two heads, one with reference to quality of the flour, and the other with reference to kind of wheat from which it was made. The flour is branded as a fancy patent flour and it is also represented by label on each sack that the flour is made of first quality hard wheat."

153. Because the court erred in instructing and charging the jury as follows:

"It is the law that if the phrase 'patent flour' has a well known and well understood meaning generally among
2695 millers, flour purchasers, bakers, and in the flour markets of the country, then such meaning as so understood is to be attributed to that phrase. In other words, patent flour is the kind of flour that it is generally understood to be by millers, bakers, flour purchasers and in the markets generally."

154. Because the court erred in instructing and charging the jury as follows:

"On the second branch of the charge of misbranding contained in the amended libel, the facts appear to be that the flour seized was manufactured by the claimant at its mill from wheat which was raised in the year 1909 in the general vicinity of Lexington, in the State of Nebraska; that the wheat weighed about fifty-nine pounds to the bushel, and was of a variety known as No. 2 Turkey wheat, in which there was a quantity of wheat known as yellow berry or as sometimes called by millers, 'yellow belly', amounting to from ten to twenty-five per cent of the total wheat used to make this flour."

155. Because the court erred in instructing and charging the jury as follows:

"The wheat known as yellow berry is commonly found in Nebraska and Kansas growing with turkey wheat. It differs in color and quality from pure turkey wheat, and is considered by the millers less desirable and is of less value commercially."

156. Because the court erred in instructing and charging the jury as follows:

"The words upon each sack, 'this flour is made of first quality hard wheat', is in effect a representation that the flour seized was made from the best hard wheat."

157. Because the court erred in instructing and charging the jury as follows:

"You are to determine whether or not that representation is true. And in so doing you will not be controlled by the facts, if it be a fact, that the wheat used was the best grown in the district where claimant procured his supply for milling, but you have a right to consider the same in comparison with other wheats grown in different places and parts of the country as disclosed by the evidence in the case, and in the light of all of the evidence on this question say whether or not the wheat used was in truth and in fact first quality hard wheat."

158. Because the court erred in instructing and charging the jury as follows:

"In view of statements that have been made by counsel during the progress of this case, you will not consider and you must put to one side all questions of who the counsel are, or where they are from. This is not a contest between states or section of the country."

159. Because the court erred in instructing and charging the jury as follows:

2696 "The fact that the patent Office at Washington issued a patent for the Alsop Process has nothing to do with the question of branding correctly, or misbranding of flour. The fact that the Patent Office issued a patent for the Alsop Process does not warrant nor authorize the adulteration of flour as made by the Alsop Process, if it is adulterated. All these things must be put to one side, and your verdict must be determined in accordance with the law and facts in the case. It is of no importance to you, nor is it of importance to me, who will be pleased or displeased in this case, whether of counsel or of the parties, or of any other person. The only question is, What is the right, and what the wrong of this case?

160. Because the court erred in instructing and charging the jury as follows:

"Your verdict must recite whether this flour was misbranded or not, and your verdict must further recite whether this flour was adulterated or not, within the meaning of what I have heretofore said to you."

161. Because the court erred in its charge to the jury in submitting two verdicts or findings of fact for the jury to sign and return.

162. Because the court erred in instructing and charging the jury as follows:

"You will make no other findings than these two. All matters bearing these two forms you will give due weight thereto, and all matters not having a bearing thereon, you will utterly disregard."

163. Because the court erred in refusing to charge the jury as requested by the claimant and defendant in written requests heretofore filed.

164. Because the court erred in its charge to the jury in not submitting all the issues of the case to the jury, and in not submitting forms of verdicts on the four charges in the libel.

165. Because the court erred in its charge to the jury by not giving the jury in such charge a definition of poison or poisonous.

166. Because the court erred in its charge to the jury in submitting to the jury therein a wrong theory of the case and of the law of the case and of the evidence in the case.

167. Because the court erred in admitting over the objections and exceptions of the claimant, and in overruling claimant's objection thereto, the testimony of the witness Sheppard to the effect and in substance as follows:

By Mr. Butler:

"Q. Will you give us the result of your study with respect to the amount of damage to the gluten of the flour
2697 resulting from the use of various amounts of this nitrogen peroxide gas employed by the Alsop Process?

A. Yes, sir, I took the same flours and some unbleached and some bleached. (The witness proceeding with a long statement as to the effect of nitrites upon flour.)

By Mr. Elliott: Your Honor, for the purpose of an objection I would like to ask this witness how was this flour bleached that you were talking about?

A. I bleached it myself.

Q. With what?

A. With nitrogen peroxide.

Q. Did you bleach it with the Alsop machine?

A. Not with the Alsop machine.

Q. I will ask you if you have analyzed the gas of the Alsop machine and if you know the proportion of peroxide in it to add? A. No, I have not.

Mr. Elliott: Then I object, your Honor, to this testimony because it is not the process that was used by the claimant in bleaching his flour and it is not germane to any—I mean effects that Professor Sheppard got bleaching in his laboratory with pure gas, is not germane to what the Lexington Mill did, using the Alsop Process.

Witness: Mr. Elliott, first, one word of explanation.

The Court: Just wait a minute. Objection is overruled and the claimant excepts."

168. The court erred in striking affidavits from the files and sustaining libellant's motion therefor.

Wherefore, said Lexington Mill and Elevator Company, claimant in said original cause, and plaintiff in error herein, prays that the judgment and decree of said District Court be reversed and for such other relief as the court may deem proper.

ED. P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,

Attorneys for Claimant and Defendant.

W. C. Scarritt,
A. M. Seddon,
of Counsel.

2698 The Bond for Appeal on Writ of Error, filed November 11th, 1910, is in words and figures as follows, to-wit:

United States of America—Sct.

Know All Men By These Presents, That we, Lexington Mill and Elevator Company (a corporation) and The Bankers Surety Company, of Cleveland, Ohio, are held and firmly bound unto United States of America in the full and just sum of Twenty-five Hundred Dollars (\$2500.00) to be paid to the said United States of America to which payment well and truly to be made, we bind ourselves, our heirs, executors and administrators, jointly and severally by these presents.

Sealed with our seals, and dated this 8th day of November, in the year of our Lord, one thousand nine hundred and Ten.

Whereas, lately at the April (1910) Term of the District Court of the United States for the Western Division of the Western District of Missouri, in a suit depending in said court between

United States of America, plaintiff, and Six Hundred and twenty-five (625) sacks of flour and Lexington Mill and Elevator Company (a corporation) claimant and defendant, a verdict and judgment was rendered against the said flour & claimant & defendant and the said claimant & defendant has obtained a writ of error of the said Court to reverse the said verdict and judgment in the aforesaid suit, and a citation directed to the said United States of America and its attorneys citing and admonishing them to be and appear in the United States Circuit Court of Appeals for the Eighth Circuit, at the City of St. Louis, Missouri, sixty days from and after the date of said citation.

Now, the condition of the above obligation is such, that if the said claimant and defendant shall prosecute said writ of error to effect, and answer all damages and costs if it fail to make good its said plea, then the above obligation to be void, else to remain in full force and virtue.

(Seal) LEXINGTON MILL & ELEVATOR CO.
(Seal) By E. M. F. Leflang, President.

(Seal) THE BANKERS SURETY CO.
(Seal) Harry L. Mallo, Attorney in fact.

Signed and sealed in presence of
Harry L. Mallo.
R. Janger.

The above bond is hereby approved and ordered to be filed and made a part of the record, this Nov. 11-1910.

SMITH McPHERSON, Judge.

2700 Power of Attorney.

At a legal and lawful meeting of the Board of Directors of The Bankers Surety Company held on the 6th day of July, 1909, the following resolution was adopted:

Whereas, the Bankers Surety Company, in order to facilitate its business of becoming surety on bonds is required to execute bonds in places other than the Home Office, upon application being made for same; and

Whereas, Harry L. Mallo of Omaha, County of Douglas, State of Nebraska, has been appointed Agent and Attorney in Fact for said Company.

Be It Resolved that the said Harry L. Mallo, be and he is hereby appointed a true and lawful Agent and Attorney in Fact for said Company, and as such Agent and Attorney in Fact he be and is hereby authorized to sign, seal and deliver

for and on behalf of the Company any and all bonds and any and all bonds signed, sealed and delivered by him shall be as valid and binding upon the said The Bankers Surety Company to all intents and purposes as fully as if done by the regular officers of the Company in their own proper persons in its behalf.

We, P. W. Harvey, President, and H. B. Sprague, Ass't. Secretary of The Bankers Surety Company hereby certify that the foregoing resolution is a true and correct copy of a resolution passed by the aforesaid meeting of the Board of Directors of said Company.

In Witness Whereof, we have hereunto subscribed our names as President and Ass't. Secretary respectively of the said The Bankers Surety Company and have affixed the corporate seal hereto this 25th day of August, 1909.

(Seal) THE BANKERS SURETY COMPANY,
By P. W. Harvey, President.

Attest: H. B. Sprague,
Ass't. Secretary.

State of Ohio,
County of Cuyahoga—ss.

On this 25th day of August, 1909, personally came before me H. B. Sprague, to me known, who being by me duly sworn did depose and say that he resides in the City of Cleveland, Ohio; that he is the Ass't. Secretary of The Bankers Surety Company the corporation described in and which executed the foregoing instrument, that he knows the seal of said corporation and that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Corporation and that he signed his name thereto by like order.

(Seal) C. C. LOWE,
Notary Public.

2701 The Bankers Surety Company
Of Cleveland
General Surety and Bonding Business.

The Bankers Surety Co., of Cleveland, Ohio, surety on the foregoing bond, hereby certifies that it has heretofore filed in the proper office of the Attorney-General at Washington, D. C., the following papers:

1. Evidence that it has obtained authority from the Attorney-General of the United States under the Act of August

13, 1904, to act as sole surety on bonds in matters affecting the United States.

2. Evidence of the election of general officers of the Company for the current year, with their names.

3. Evidence of the appointment of an agent for service of process in the Judicial District of Nebraska.

4. Evidence of the authority of the within named Harry L. Mallo and to execute bonds of the character of that annexed hereto on behalf of the Company.

5. A copy of its quarterly financial statement as filed in the Department of Justice.

In Witness Whereof, the said Harry L. Mallo has caused its seal to be hereunto affixed, and these presents to be executed by its proper officers at Cleveland, this 1st day of November, A. D. 1910.

By P. W. HARVEY,
President.

Attest:

M. A. Craig,
Secretary.

2702 On the 17th day of December, 1910, a Petition for Appeal was filed in words and figures as follows, to-wit:

In the United States District Court for the Western Division of the Western District of Missouri.

United States of America

No. 285. vs.

Six Hundred and Twenty-Five (625) Sacks of Flour. Lexington Mill & Elevator Company, Claimant.

Petition for Appeal.

To the Honorable Judge of the District Court of the United States for the Western Division of the Western District of Missouri:

By leave of Court first had and obtained to file the same herein, this the petition of the Lexington Mill & Elevator Company, the defendant, claimant and appellant herein, respectfully shows as follows:

1. On or about May 19th, 1910, the libellant filed an amended libel in the District Court of the United States for the Western Division of the Western District of Missouri, against six hundred and twenty-five sacks of flour, charging that the said flour contained in said packages and sacks was adulterated within the meaning of the Act of Congress, approved June 30, 1906, entitled, "An Act for preventing the manufacture, sale or transportation of adulterated or mis-

branded, poisonous or deleterious foods, drugs, medicines and liquors and for regulating traffic therein and for other purposes;" and further charging that said flour so contained in said packages and sacks was misbranded within the meaning and intent of said Act of Congress, as by reference to 2703 said amended libel will more fully appear; and praying that process issue out of said court and that the United States Marshal of said District be commanded by order of said court to seize the packages and sacks of flour aforesaid for confiscation, destruction or sale, to be dealt with as the court might order and determine.

2. On or about May 31, 1910, the claimant and defendant, Lexington Mill & Elevator Company, duly appeared and filed its answer to said amended libel denying the allegations of said amended libel and praying that said complaint and libel be dismissed, and that that flour seized under the writ issued by said court be released and restored to said claimant and defendant, and that said claimant and defendant may recover its costs therein expended, as by reference to said answer will more fully appear.

3. On or about June 1, 1910, the libellant filed its reply to said answer, denying the allegations of said answer; as by reference to said reply will more fully appear.

4. On or about June 2, 1910, said cause came on for hearing in said District Court before the Hon. Smith McPherson, then Judge of said court, and a jury duly impanelled in said cause, and evidence was adduced on the part of both parties and such proceedings were had that on July 6, 1910, a verdict was rendered by said jury under the instructions of the court, and a final decree and judgment was made and entered in said cause whereby it was adjudged that the flour seized in said cause be and the same is condemned and confiscated to the United States of America as being food adulterated and misbranded within the meaning of the Act of Congress, approved June 30, 1906, and that all of the same be destroyed by the United States Marshal.

5. The above named claimant and defendant, and the appellant herein, is advised and insists that the said verdict, final decree and judgment are erroneous in that it is found, decreed and ordered therein that said flour is adulterated and misbranded within the meaning of the Act of Congress, 2704 approved June 30, 1906, and is further erroneous in that said flour is condemned and confiscated to the United States of America, and in that it is ordered that all of the same be destroyed by the United States Marshal and that claimant pay the costs of said proceeding, all of which fully appears by

the evidence, records and other proceedings filed and made herein.

6. For these and others reasons the above named claimant and defendant, and appellant herein, feeling itself aggrieved by the decree and judgment made and entered in this cause on July 6, 1910, does hereby appeal from said decree and judgment to the United States Circuit Court of Appeals for the Eighth Circuit for the reasons specified in its assignment of errors, which was filed in this court on November 11, 1910, which said assignment of errors is made a part of this petition for appeal by reference and is filed herewith, and said claimant and defendant and appellant prays that this appeal be allowed, and that citation issue as provided by law, and prays that a transcript of the record, bill of exceptions herein filed and the other proceedings and papers upon which said decree and judgment was based may be sent to the United States Circuit Court of Appeals for the Eighth Circuit at St. Louis, and that said decree and judgment may be reversed, and on said appeal the claimant and defendant and appellant intends to seek a new decision on the law and on the facts upon the pleadings and proofs in said District Court and upon new pleadings and proofs which may be introduced in the United States Circuit Court of Appeals for the Eighth Circuit.

ED. P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,

Attorneys for Claimant and Defendant Lexington
Mill & Elevator Co.

W. C. Scarritt,
A. M. Seddon,
Of Counsel.

Allowed this December 17th, 1910.

ARBA S. VAN VALKENBURGH,
SMITH McPHERSON,
United States District Judge, Western Division
of Western District of Missouri.

2705 On the said 17th day of December, 1910, an Order Allowing Appeal was filed and entered of record in words and figures as follows, to-wit:

In the United States District Court for the Western Division
of the Western District of Missouri.

United States of America
No. 285: vs.
Six Hundred and Twenty-five (625) Sacks of Flour. Lexington
Mill & Elevator Company, Claimant.

Order Allowing Appeal.

On this 17th day of December, 1910, upon the petition for appeal of claimant and appellant, Lexington Mill & Elevator Company, and application therefor, with assignment of errors filed therewith, on this day, praying for the allowance of an appeal in the above entitled cause to the United States Circuit Court of Appeals for the Eighth Circuit, all parties appearing by their respective attorneys, and it appearing to the court that said appellant has filed on November 11, 1910 its assignment of errors as required by the rules of the Circuit Court of Appeals for the Eighth Circuit, and has duly served and filed notice of appeal herein.

It is ordered that the said appeal be and the same is allowed as prayed for, and it is further ordered that a supersedeas bond on said appeal be and the same is hereby fixed in the sum of \$2500.00; which said bond is now filed, signed by said appellant Lexington Mill & Elevator Company, as principal, and

American Surety Company of New York, a surety company, as surety; which bond and surety are now approved by the court and said bond is ordered to be filed and made a part of the record in this cause, and it is further ordered that the said bond shall operate and be a supersedeas bond and shall stay all further proceedings with reference to the judgment and decree in this cause during the pendency of this appeal in the United States Circuit Court of Appeals for the Eighth Judicial Circuit.

And it is ordered that a writ of citation issue in accordance with the allowance of this appeal, which said citation is now and here issued. Thereupon the said claimant and defendant and appellant, Lexington Mill & Elevator Company, files and duly serves in open court the libelant and its attorneys with the citation herein allowed and ordered, which citation is duly accepted by said libelant and its attorneys.

December 17th, 1910.

SMITH McPHERSON,
ARBA S. VAN VALKENBURGH,
Judges.

2707 The Bond for Appeal filed on December 17th, 1910, is in words and figures as follows, to-wit:

United States of America—sct.

Know All Men By These Presents, That we, Lexington Mill and Elevator Company, as principal and American Surety Company of New York, as surety, are held and firmly bound unto United States of America in the full and just sum of Twenty-five Hundred (\$2500.00) Dollars to be paid to the said United States of America, to which payment well and truly to be made, we bind ourselves, our heirs, executors and administrators, jointly and severally by these presents.

Sealed with our seals, and dated this 16th day of December, in the year of our Lord, one thousand nine hundred and ten.

Whereas, lately at the April term of the District Court of the United States for the Western Division of the Western District of Missouri, in a suit depending in said court between United States of America as libellant and plaintiff, and Six Hundred Twenty-five Sacks of Flour and Lexington Mill and Elevator Company as claimant and defendant, a decree and judgment was rendered against the said claimant and defendant and the said Lexington Mill and Elevator Company has obtained an order allowing an appeal of the said Court to reverse the decree and judgment in the aforesaid suit, and a citation directed to the said United States of America citing and admonishing it to be and appear in the United States Circuit Court of Appeals for the Eighth Circuit, at the city of St. Louis, Missouri, sixty days from and after the date of said citation.

Now, the condition of the above obligation is such, that if the said Lexington Mill and Elevator Company, claimant and defendant, shall prosecute said appeal to effect, and answer all damages and costs if it shall fail to make good its plea, then the above obligation to be void, else to remain in full force and virtue.

2708 (Seal) LEXINGTON MILL & ELEVATOR CO.

By E. L. Scarritt, It's Attorney & Agent.

(Seal) AMERICAN SURETY COMPANY OF
NEW YORK,

(Seal) By Robert F. Porter,
Resident Vice President.

Attest:

(Seal) C. E. Hersh,
Resident Ass't Secretary.

Signed and sealed in presence of
Alfred M. Seddon.

The above bond is hereby approved and ordered to be filed and made a part of the record.

ARBA S. VAN VALKENBURG, Judge,
SMITH McPHERSON, Judge.

December 17th, 1910.

2709 On the 3rd day of January, 1911, a Stipulation was filed in words and figures as follows, to-wit:

In the District Court of the United States for the Western Division of the Western District of Missouri.

United States of America

No. 285. vs.

Six Hundred and Twenty-five Sacks of Flour. Lexington Mill and Elevator Company, Claimant.

It is stipulated and agreed between the parties hereto that Libellant's original exhibits numbered 1-2-3-4-5 and 7 and Claimant's original exhibit numbered 204 may be embodied in the Bill of Exceptions herein and transmitted to the Appellate Court with the same effect as if copied therein.

E. L. SCARRITT,
Attorney for Claimant.

PIERCE BUTLER,
LESLIE J. LYONS,
Attorneys for Libellant.

2710 On the said 3rd day of January, 1911, a Stipulation was filed in words and figures as follows, to-wit:

In the United States District Court for the Western Division of the Western District of Missouri.

United States of America

No. 285. vs.

Six Hundred and Twenty-Five (625) Sacks of Flour. Lexington Mill and Elevator Company, Claimant and Defendant.

Stipulation.

The parties to the above entitled cause stipulate and agree by and between themselves as follows:

The Clerk of the United States Circuit Court of Appeals for the Eighth Circuit is hereby authorized and instructed to omit from the printing of the record in this case the following pleadings, entries and orders.

1. The answer of the Lexington Mill and Elevator Company made to the original libel, filed April 22, 1910.

2. The application of the Lexington Mill and Elevator Company filed April 22, 1910, and the order based on the same.

3. The order setting the case for trial made May 5, 1910.

4. The motion of the Lexington Mill and Elevator Company to strike from the files the amended libel filed May 25, 1910.

5. The order overruling said motion made May 31, 1910.

6. The order adjourning court made June 2, 1910.

7. Same order made June 3, 1910.

8. Same order made June 4, 1910.

9. Same order made June 6, 1910.

10. Same order made June 7, 1910.

11. Same order made June 8, 1910.

12. Same order made June 9, 1910.

2711 13. Same order made June 10, 1910.

14. Same order made June 11, 1910.

15. Same order made June 13, 1910.

16. Same order made June 14, 1910.

17. Same order made June 15, 1910.

18. Same order made June 16, 1910.

19. Same order made June 17, 1910.

20. Same order made June 20, 1910.

21. Same order made June 21, 1910.

22. Same order made June 22, 1910.

23. Same order made June 23, 1910.

24. Same order made June 24, 1910.

25. Same order made June 27, 1910.

26. Order to pay insurance and storage charges made June 28, 1910.

27. Order adjourning court made June 28, 1910.

28. Same order made June 29, 1910.

29. Same order made June 30, 1910.

30. Same order made July 1, 1910.

Of counsel for Appellant,
W. C. Scarritt,
A. M. Seddon.

ED. P. SMITH,
BRUCE S. ELLIOTT,
A. E. HELM,
E. L. SCARRITT,

Attorneys for Claimant and Appellant.

PIERCE BUTLER,
LESLIE J. LYONS,

Attorneys for Libellant and Appellee.

2712 United States of America—Sct.

I, Howard N. McCreary, Clerk of the United States District Court for the Western Division of the Western District of Missouri, do hereby certify the foregoing to be a full and true

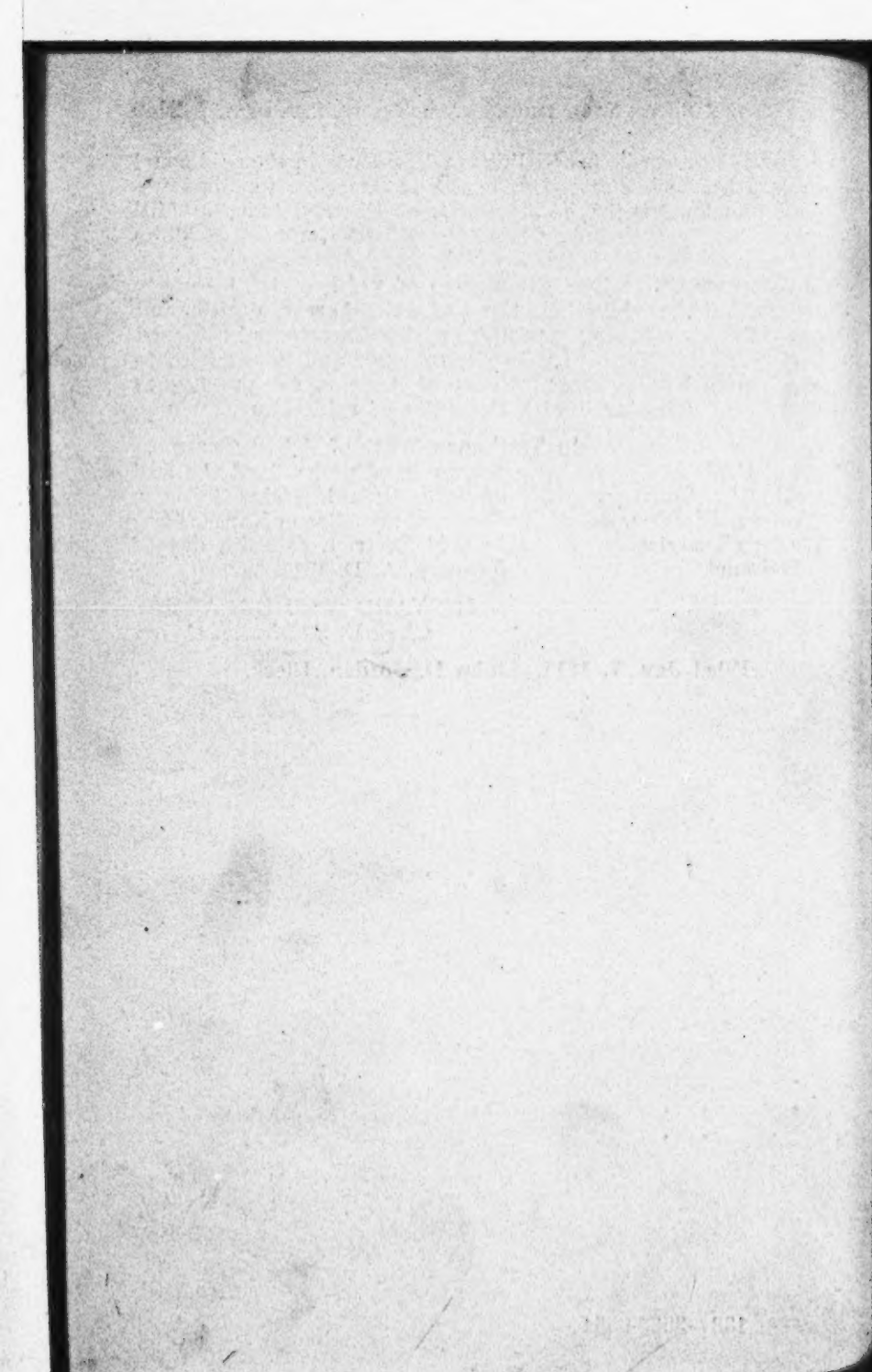
copy of the records, proceedings and evidence in the said court in case No. 285, The United States of America, vs. Six Hundred and Twenty-five (625) Sacks of Flour, Lexington Mill and Elevator Company, Claimant, with the original exhibits in said case, except those which were destroyed by order of Court or omitted by Stipulation of parties, and I further certify that the original citation and writ of error, citation and copy of order allowing appeal are prefixed hereto and returned herewith. All of which is hereby returned and transmitted to the United States Circuit Court of Appeals for the Eighth Circuit in accordance with the rules of said Court.

Seal
U. S. Dist. Court
Western Division,
Western District
Missouri.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said United States District Court, at my office in Kansas City, in said District, this 6th day of January, A. D. 1911.

HOWARD N. McCREARY,
Clerk U. S. District Court.

Filed Jan. 7, 1911. John D. Jordan, Clerk.



(Appearance of Counsel for Plaintiff in Error in Cause No. 3533)

On the tenth day of January, A. D. 1911, an appearance of counsel for plaintiff in error was filed in cause No. 3533, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. No. 3533.

LEXINGTON MILL AND ELEVATOR COMPANY, A CORPORATION, Claimant, Plaintiff in Error,
vs.
THE UNITED STATES OF AMERICA.

The Clerk will enter my appearance as Counsel for the Pltf. in Error.

W. C. SCARRITT
A. M. SEDDON
of Counsel.

ED. P. SMITH
BRUCE S. ELLIOTT
A. E. HELM
E. L. SCARRITT

(Endorsed): U. S. Circuit Court of Appeals, Eighth Circuit. No. 3533. Lexington Mill and Elevator Company, a corporation, Claimant, Pltf. in Error, vs. The United States of America. Appearance. Filed Jan. 10, 1911, John D. Jordan, Clerk. Ed. P. Smith, Bruce S. Elliott, A. E. Helm, E. L. Scarritt, W. C. Scarritt, A. M. Seddon, Counsel for Pltf. in Error.

(Appearance of Mr. Leslie J. Lyons as Counsel for Defendant in Error in Cause No. 3533.)

And on the twenty-first day of February, A. D. 1911, an appearance of Mr. Leslie J. Lyons as Counsel for the Defendant in Error was filed in Cause No. 3533, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. No. 3533.

LEXINGTON MILL AND ELEVATOR COMPANY, A CORPORATION, claimant, Plaintiff in Error,
vs.
THE UNITED STATES OF AMERICA.

The Clerk will enter my appearance as Counsel for the Defendant in Error.

LESLIE J. LYONS.

(Endorsed): U. S. Circuit Court of Appeals, Eighth Circuit, No. 3533. Lexington Mill and Elevator Company, a corporation, claimant, Plaintiff in Error, vs. The United States of America. Appearance. Filed Feb. 21, 1911, John D. Jordan, Clerk. Leslie J. Lyons, Counsel for Deft. in Error.

(Appearance of Mr. Pierce Butler as Counsel for Defendant in Error in Cause No. 3533.)

And on the twenty-eighth day of February, A. D. 1911, an appearance of Mr. Pierce Butler as Counsel for the Defendant in Error was filed in Cause No. 3533, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. No. 3533.

LEXINGTON MILL AND ELEVATOR COMPANY, A CORPORATION, claimant, Plaintiff in Error,	}
vs.	
THE UNITED STATES OF AMERICA.	

The Clerk will enter my appearance as Counsel for the Defendant in Error.

PIERCE BUTLER,
Special Assistant Attorney General.

(Endorsed): U. S. Circuit Court of Appeals, Eighth Circuit. No. 3533. Lexington Mill & Elevator Company, a corporation, claimant, Plaintiff in Error, vs. The United States of America. Appearance. Filed Feb. 28, 1911, John D. Jordan, Clerk. Pierce Butler, Counsel for Deft. in Error.

(Appearance of Counsel for Appellant in Cause No. 3534.)

And on the seventh day of January, A. D. 1911, an appearance of Counsel for Appellant was filed in Cause No. 3534, in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Eighth Circuit.

UNITED STATES OF AMERICA,	}
vs.	
SIX HUNDRED AND TWENTY-FIVE (625) SACKS OF	
Flour, Lexington Mill and Elevator Company, Claimant and Appellant.	

Entry of Appearance.

Now come Ed. P. Smith, Bruce S. Elliott, A. E. Helm and E. L. Scarritt, Attorneys, and W. C. Scarritt and A. M. Seddon of Counsel, for Appellant, and hereby enter their appearance herein on this, the day and date of the filing of the transcript of the Record herein brought up by writ of error and appeal, and pray that such appearance be entered in this Court.

W. C. SCARRITT
A. M. SEDDON
Of Counsel

ED. P. SMITH
BRUCE S. ELLIOTT
A. E. HELM
E. L. SCARRITT

Attorneys for Claimant and Appellant.

(Endorsed): No. 3534. United States of America vs. Six Hundred and Twenty-five (625) Sacks of Flour, Lexington Mill and Elevator Company, Claimant and Appellant. Entry of appearance for Appellant. Filed Jan. 7, 1911, John D. Jordan, Clerk. Ed. P. Smith, Bruce S. Elliott, A. E. Helm, E. L. Scarritt, W. C. Scarritt, A. M. Seddon, Counsel for Appellant.

(Appearance of Mr. Leslie J. Lyons as Counsel for Appellee in Cause No. 3534.)

And on the twenty-first day of February, A. D. 1911, an appearance of Mr. Leslie J. Lyons as Counsel for the Appellee was filed in Cause No. 3534, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. No. 3534.

LEXINGTON MILL AND ELEVATOR COMPANY, CLAIM-
ant, Appellant,
vs.
THE UNITED STATES OF AMERICA.

The Clerk will enter my appearance as Counsel for the Appellee.
LESLIE J. LYONS.

(Endorsed): U. S. Circuit Court of Appeals, Eighth Circuit. No. 3534. Lexington Mill & Elevator Company, claimant, Appellant, vs. The United States of America. Appearance. Filed Feb. 21, 1911, John D. Jordan, Clerk, Leslie J. Lyons, Counsel for Appellee.

(Appearance of Mr. Pierce Butler as Counsel for Appellee in Cause No. 3534.)

And on the twenty-eighth day of February, A. D. 1911, an appearance of Mr. Pierce Butler as counsel for the Appellee was filed in Cause No. 3534, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. No. 3534.

LEXINGTON MILL AND ELEVATOR COMPANY, CLAIM-
ant, Appellant,
vs.
THE UNITED STATES OF AMERICA.

The Clerk will enter my appearance as Counsel for the Appellee.
PIERCE BUTLER,
Special Assistant Attorney General.

(Endorsed): U. S. Circuit Court of Appeals, Eighth Circuit. No. 3534. Lexington Mill and Elevator Company, claimant, Appellant, vs. The United States of America. Appearance. Filed Feb. 28, 1911, John D. Jordan, Clerk. Pierce Butler, Counsel for Appellee.

(Motion to Dismiss Appeal in Cause No. 3534.)

And on the twentieth day of May, A. D. 1911, a Motion to Dismiss the Appeal in Cause No. 3534 was filed, in the words and figures following, to-wit:

In the United States Circuit Court of Appeals for the Eighth Circuit.

LEXINGTON MILL AND ELEVATOR COMPANY, CLAIM-
ant, Appellant,

vs.

THE UNITED STATES OF AMERICA, APPELLEE.

} Number 3534.

Motion to Dismiss.

Comes now the United States of America by their solicitors, Pierce Butler, Esq., Special Assistant Attorney General of the United States, and Leslie J. Lyons, Esq., United States Attorney for the Western District of Missouri, and move the Court to dismiss the appeal in the above entitled case upon the following grounds, to-wit:

(a) Because an appeal does not lie in said case.

(b) Because appeal is not the method provided by law for review of the proceedings had in said case.

(c) Because the appellant is seeking to have this Court review by appeal, proceedings had in the trial court in the case brought by the United States Attorney for the Western District of Missouri, to seize and confiscate certain merchandise, to-wit; flour, under the provisions of Section 10 of the Food and Drugs Act, approved June 30th, 1906, for the reason that said merchandise and flour was adulterated and misbranded within the meaning of said Act; said Act further providing that the issues in such a case shall be tried before a jury if either party shall so request and the record in this case shows that said case was tried in the lower court before a jury and the issues joined therein were submitted to said jury for its findings of the facts, and further shows that said jury did return its verdicts therein in favor of the United States of America.

(d) Because appeal is not the proper method to review proceedings had in the trial court under the Food and Drugs Act, approved June 30, 1906, which are tried before a jury for its findings of the facts.

(e) Because writ of error is the proper and only method to secure the review of the proceedings had in said case.

(f) Because the proceedings had in said case in the lower court has been brought to this court for review and is now pending before this court upon writ of error.

Wherefore, appellees move that said appeal be dismissed at the cost of the appellant.

PIERCE BUTLER

Special Assistant Attorney General of the United States.

LESLIE J. LYONS

United States Attorney for the Western District of Missouri.

Solicitors for the Appellee.

(Endorsed): In the United States Circuit Court of Appeals for the Eighth Circuit. No. 3534. Lexington Mill & Elevator Co. Claimant, Appellant, vs. The United States of America. Motion to Dismiss. Filed May 20, 1911, John D. Jordan, Clerk. Pierce Butler, Special Assistant Attorney General of the U. S. Leslie J. Lyons, U. S. Attorney for Western District of Missouri. Solicitors for Appellee.

(Order of Submission.)

And on the twenty-ninth day of May, A. D. 1911, in the record of the proceedings of said Circuit Court of Appeals is an Order of Submission in said causes, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. May Term, 1911. Monday, May 29, 1911.

LEXINGTON MILL AND ELEVATOR COMPANY, A COR- poration, claimant, Plaintiff in Error, No. 3533.	vs.	}
THE UNITED STATES OF AMERICA.		

In Error to the District Court of the United States for the Western District of Missouri.

and

LEXINGTON MILL AND ELEVATOR COMPANY, CLAIM- ant, Appellant, No. 3534.	vs.	}
THE UNITED STATES OF AMERICA.		

Appeal from the District Court of the United States for the Western District of Missouri.

The above entitled causes having been called for hearing in their regular order, argument was commenced by Mr. E. L. Scarritt in behalf of plaintiff in error and appellant, continued by Mr. Pierce Butler and Mr. Leslie J. Lyons in behalf of defendant in error and appellee and concluded by Mr. Ed P. Smith in behalf of plaintiff in error and appellant.

Thereupon, these causes were submitted to the Court on the transcripts of record from said District Court and the briefs of counsel filed herein.

(Opinion.)

And on the twenty-third day of January, A. D. 1913, the opinion of the United States Circuit Court of Appeals for the Eighth Circuit was filed in said causes, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit.

No. 3533.—December Term, A. D. 1912.

LEXINGTON MILL & ELEVATOR COMPANY, claimant, Plaintiff in Error, vs.	}	In Error to the District Court of the United States for the Western District of Missouri.
UNITED STATES OF AMERICA, DEFEND- ant in Error.		

No. 3534.—December Term, A. D. 1912.

LEXINGTON MILL & ELEVATOR COMPANY, claimant, Appellant, vs.	}	Appeal from the District Court of the United States for the Western District of Missouri.
UNITED STATES OF AMERICA, Appellee.		

Mr. Edward P. Smith and Mr. E. L. Scarritt (Mr. Bruce S. Elliott, Mr. A. E. Helm, Mr. C. J. Smyth and Mr. W. C. Scarritt were with them on the brief) for plaintiff in error and appellant.

Mr. Leslie J. Lyons, United States Attorney, and Mr. Pierce Butler, Special Assistant Attorney General, (Mr. William G. Graves was with them on the brief) for defendant in error and appellee.

Before SANBORN, Circuit Judge, and WM. H. MUNGER and MARSHALL, District Judges.

Proceedings by the United States of America to forfeit six hundred and twenty-five sacks of flour—Lexington Mill & Elevator Company, claimant. Trial was had to a jury and verdict rendered in favor of the United States. From the judgment entered thereon, the claimant brings error and appeal.

MARSHALL, District Judge, delivered the opinion of the court.

The Lexington Mill and Elevator Company is a corporation of the State of Nebraska and is engaged in the manufacture of flour at Lexington, Nebraska. On April 1, 1910, it shipped from Lexington to B. O. Terry at Castle, Missouri, six hundred and twenty-five sacks of flour manufactured by it. On April 9, 1910, a libel was filed by the United States under the provisions of Sec. 10 of the Food and Drugs Act, 34 Stat. 768, and a warrant of seizure issued, by virtue of which the flour was seized under the claim that it was adulterated and misbranded in violation of the provisions of that Act. The Lexington Mill & Elevator Company appeared as claimant. It averred that it had sold the flour under a guarantee that it was not adulterated within the meaning of the Food and Drugs Act, and that pursuant to that guarantee it had furnished to the purchaser other flour in lieu of that seized, and had become the owner of the flour in litigation. It was permitted to answer the libel and the case was then tried to a court and jury with the result that the United States had a verdict that the flour was adulterated and misbranded. From the judgment of condemnation rendered on this verdict the claimant prosecutes an appeal and a writ of error. A motion is made to dismiss the appeal and this must be sustained.

The act under which this libel was filed provides in Sec. 10 for the process of libel for condemnation and that "The proceedings of such libel cases shall conform, as near as may be, to the proceedings in admiralty, except that either party may demand a trial by jury of any issue of fact joined in any such case, and all such proceedings shall be at the suit of and in the name of the United States." This did not change the essential character of the action or make it other than an action at law. As a matter of procedure it has to conform "as near as may be to proceedings in admiralty," but a trial by jury at the demand of either party is provided, and a review of the facts so tried by appeal was not expressly granted. The question as to the proper method of review was decided in this Court in the case of *United States v. Seven Hundred and Seventy-nine Cases of Molasses*, 174 Fed. 325. The Supreme Court of the United States has had occasion to pass on the principle involved in cases arising under the Act of July 17, 1862, entitled "An Act to suppress insurrection, to punish treason and rebellion, to seize and confiscate the property of rebels and for other purposes," which provided that the pro-

proceedings against the property seized shall be in rem and "shall conform as nearly as may be to proceedings in admiralty or in revenue cases." That court held that a writ of error was the only method of review. The appeal in No. 3534 will be dismissed and jurisdiction will be taken of the writ of error in No. 3533.

Before a consideration of the questions arising on the writ of error a more complete statement of the facts is necessary. The claimant in the manufacture of the flour seized uses the Alsop patented process. A complete description of this process may be found in the opinion of this Court in *Naylor v. Alsop Process Co.*, 168 Fed. 911. It is sufficient for the present purpose to say that by it nitrogen peroxide gas is formed by electric discharges. This gas mixed with air is brought into contact with the freshly milled flour, with the result of bleaching it. The method is this: in a small chamber one electrode is fixed; the other is given a reciprocating motion so as to alternately touch and separate from the fixed electrode. A current of high potential is used. The circuit is completed by the contact. Separation of the electrodes results in an arc. The inert nitrogen of the air is oxidized and nitrogen peroxide gas formed. This gas diluted by mixture with air is conveyed to a box or agitator, through which the flour is permitted to fall and the bleaching is at once effected. The chemical reaction seems to be as follows: The nitrogen peroxide gas coming in contact with the moisture of the flour, splits and forms nitric and nitrous acids, both oxidizing agents, but the nitric acid the more powerful. The nitric acid certainly and the nitrous acid probably unite with the coloring matter of the flour and bleach it. Nitrites are formed by the union of the nitrous acid with the bases in the flour and nitrates by the union of the nitric acid with those bases. The nitrates may be disregarded as non-injurious; the nitrites are claimed to be poisonous. The flour seized was subjected to the Griess-Isovoy test, an extremely delicate test for the detection of the presence of nitrites and was shown to contain nitrites or material reacting as nitrites to the amount of three parts per million. The misbranding is predicated on this. The sacks containing the flour were labeled "L 48, Lexington cream XXXXX, fancy patent. This flour is made of first quality hard wheat." In fact, the flour was milled from Turkey red wheat. This wheat replanted from year to year gradually degenerates and becomes mixed with a wheat of a yellow color, called locally "yellow berry." This admixture with yellow berry deteriorates the quality of the wheat. The wheat in question contained this yellow berry to the extent of from fifteen to twenty-five per cent of its total quantity. Both Turkey red and yellow berry are hard wheats. This wheat graded as No. 2, and this was the best grade of wheat grown or milled in Nebraska or neighboring states. In other sections of the country wheat grading as No. 1 is grown. There can be milled from the same wheat flour of different grades. That flour which contains the entire flour content of the berry is called "straight flour"; patent flour excludes a part of the flour content; that part of the berry nearest the bran coat containing the greater part of the oil and coloring matter. Clear flour is the residue of the flour content of the wheat after taking out the patent flour. The result is that patent flour is whiter than straight and straight is whiter than clear flour.

The jury found separate verdicts, (1) that the flour seized was adulterated, and (2) that it was misbranded. The Court charged the jury: "It is clear that it was intended by Congress to prohibit the adding to the food of any quantity of the prohibited substance. The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water and in articles of food such as ham, bacon, fruits, certain vegetables and other articles does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore, the court charges you that the Government need not prove that this flour or food stuffs made by the use of it, would injure the health of any consumer. It is the character, not the quantity of the added substance, if any, which is to determine this case." This was excepted to and was assigned as error. There was evidence tending to prove that flour containing the percentage of nitrites found in the seized flour, might be injurious to health when used as a food for a considerable period, but this was disputed, and the converse supported by substantial testimony. This was the most stubbornly contested issue in the case, and that it was an issue was recognized by the Government at all stages of the trial.

The part of the statute material to a consideration of the correctness of this instruction is found in Sec. 7 of the Act, which reads:

"Sec. 7. That for the purposes of this Act an article shall be deemed to be adulterated: * * * *

"In the case of food:

"First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

"Second. If any substance has been substituted wholly or in part for the article.

"Third. If any valuable constituent of the article has been wholly or in part abstracted.

"Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

"Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health
* * * *

The instruction complained of referred to the charge in the libel under the fifth subdivision just quoted. The trial judge decided that if the added substance was qualitatively poisonous although in fact added in such minute quantity as to be non-injurious to health that it still fell under the ban of the statute; and the distinction is sought to be drawn between substances admittedly poisonous when administered in considerable quantities but which serve some beneficial purpose when administered in small amounts, and those substances which it is claimed never can benefit and which in large doses must injure. This distinction is refined. To apply it must presuppose that science has exhausted the entire field of investigation as to the effect upon the human body of these various substances; that nothing remains to be learned. Otherwise the court would be required to solemnly adjudge today that a certain substance is qualitatively poisonous because it can never serve a useful purpose in the human system only to have this conclusion made absurd by some new discovery. There is no warrant in the statute

in such a strained construction. The object of the law was evidently (1) to insure to the purchaser that the article purchased was what it purported to be, and (2) to safeguard the public health by prohibiting the inclusion of any foreign ingredient deleterious to health. *Hall-Baker Grain Co. v. United States*, 198 Fed. 614. The statute is to be read in the light of these objects, and the words "injurious to health" must be given their natural meaning. It will be observed that this paragraph of the statute does not end with the words "added deleterious ingredient" but as a precaution against the idea embodied in the instruction complained of, it says "which may render such article injurious to health." Without these latter words it might, with more force, be argued that deleterious and beneficent ingredients are to be divided into two general classes independent of their particular effect in the actual quantities administered, but the possibility of injury to health due to the added ingredient and in the quantity in which it is added, is plainly made an essential element of the prohibition. The investigation does not stop with the consideration of the poisonous nature of the added substance. It is added to the article of food and the statute only prohibits it if it may render such article—the article of food—injurious to health.

In *French Silver Dragée Co. v. United States*, 179 Fed. 824, this question was considered by the Court of Appeals of the Second Circuit. In that case adulteration was charged in confectionery by the addition of silver. The article in question was made of sugar and thinly coated with pure silver. The statute declares that confectionery shall be deemed to be adulterated "if it contain terra alba, barytes, talc, chrome yellow, or other mineral substance of poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt or spiritous liquor or compound or narcotic drug." The element of injury to health is not expressed as a qualification of mineral substance. Silver is admittedly a mineral substance and the act of the defendant was within the letter of the prohibition, but the court construing the statute in the light of the evils it was intended to remedy, the objects sought to be accomplished, held that there was implied in this clause relating to confectionery the very limitation expressed in the paragraph relating to food, and as there was no proof that the coating of silver might render the article injurious to health, it did not fall within the ban of the statute. It was there said: "Stated in another way we think that the history of the Act, the objects to be accomplished by it and the language of all its provisions, require that it should be so interpreted that in the case of confectionery as in the case of foods and drugs, the Government should establish with respect to products not specifically named that they either deceive or are calculated to deceive the public or are detrimental to health."

In *Friend v. Matt*, 68 J. P. 589, there was under consideration Sec. 3 of 38-39 Victoria, Chap. 63, which reads: "No person shall mix, color, stain, or powder or alter, or permit another person to mix, color, stain or powder any article of food or any ingredient or material so as to render the article injurious to health." In that case the respondent was charged with selling preserved peas, the color of which had been retained by the addition of sulphate of copper. It was contended that as sulphate of copper in substantial

quantity was injurious to health, the peas so treated with it were within the statute even if the treated peas were not injurious to health. This view prevailed in the trial court, but the judgment was reversed on appeal, Lord Alverstone, Chief Justice, saying: "I have no doubt that in order to convict under Sec. 3, the article of food must be shown to be injurious to health by the addition of some ingredient."

The instruction complained of eliminated a consideration of any possible injurious effect from the use of the flour as an article of food, and was erroneous. We are not unmindful of the contention that the evidence conclusively shows that flour subjected to the bleaching process is injurious to health in some degree, even if its injurious effect is so slight as to be incapable of observation, and that, hence, the instruction we have found to be error was error without prejudice. This contention is founded upon expert testimony as to the result from the taking of nitrites into the human system. It is said that nitrites taken into the human body act upon the coloring matter of the red corpuscles of the blood so as to change the hemoglobin of the blood into methemoglobin. In the language of one of the chief chemical experts of the Government this effect is thus described:

"In the blood stream there are red corpuscles, invisible to the naked eye, which contain a red coloring substance known as hemoglobin, when not combined with oxygen, and when combined with oxygen forming a dissociable compound, oxyhemoglobin. In respiration, the hemoglobin contained in the red corpuscles of the venous blood is brought into the lungs, where it having an affinity for the oxygen, which is one of the gaseous constituents of the air, combines with the oxygen to form oxyhemoglobin. This oxyhemoglobin contained in the red blood corpuscles is then conveyed, through the arterial system to the various parts of the body, and of the terminals of the arterial system, passing through a mass of tissue, it gives up its oxygen, to oxidize the tissues, or materials that may be in solution there, to form carbon dioxide, and to form water, and this oxyhemoglobin is thereby reduced to the condition of hemoglobin which is returned by the venous system to the lungs, to be again oxygenated. That is where the hemoglobin will again combine with oxygen to form oxyhemoglobin, and a given quantity of hemoglobin may serve to carry a given quantity of oxygen to the system. Now, however, if any of this hemoglobin is converted into methemoglobin, which is a compound of oxygen with hemoglobin, in which the oxygen is more firmly combined than in the case of oxyhemoglobin, although the quantity of oxygen is the same, the oxygen is so firmly attached—combined with the hemoglobin—that the vital processes are not sufficiently strong to separate the oxygen from the hemoglobin, nor to use the oxygen to oxidize the tissue and tissue material, to sustain life, and, consequently, it passes through the circulation to the arterial system and the venous system, and continues this cycle until, finally, it is destroyed by the liver. Therefore, a certain quantity of the hemoglobin is rendered inefficient. It no longer functions as a carrier of oxygen to the system, serves, or acts, as a foreign body in the blood circulation, and, therefore, must be removed. As I have said before, an extra strain is placed upon the liver, in order to remove it, and an extra strain is placed upon the

red blood marrow, in adults, to regenerate the corpuscles, and to replace the corpuscles of the hemoglobin that have been rendered inactive by the action of nitrite, and the formation of methemoglobin." It is also said that the continued presence of nitrites in the system does not develop any tolerance on the part of the body or means of neutralizing its normal action. On the other hand, it was proved that no injurious effect had ever been observed from the use of bleached flour although such flour had been largely used. That nitrites in some or greater amounts are frequently present in potable water, bacon, ham, fruits and certain vegetables, and even in the saliva of both adults and children, and no evil result has been detected. That urea usually present in saliva is, when taken into the stomach, a neutralizer of nitrites, and is a method by which nature averts harm from minute quantities of nitrites so constantly taken into the system. In this conflict of evidence it was essentially a matter for the jury to find the fact under proper instructions. Expert testimony is but evidence. In case of dispute the controversy can not be settled by the judicial knowledge of the court. *U. S. v. McFlue*, 1 Curtis, C. C. 1-9; *U. S. v. Molloy*, 31 Fed. 19. It cannot be held that the evidence was so conclusive in favor of the Government as to warrant the court in withdrawing this issue from the jury.

The Government also claimed that the seized flour was adulterated within the first and fourth subdivisions of Section 7 before quoted in that a substance, viz.: Nitrites or nitrite reacting material had been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength and that it had been thereby colored in a manner whereby damage or inferiority is concealed. The claimant requested a peremptory instruction in its favor on the issues so tendered by the libel, and assigns the refusal to so instruct as error.

The mixture referred to in the first subdivision must be held to include a chemical compound as well as a mechanical mixture. While this does not accord with the scientific definition of a mixture, yet in common acceptation mixtures and compounds are not discriminated. The evil intended to be remedied by the statute is not limited to a mechanical mixture, but is just as potent when the chemical union results from the two substances with the deleterious effect intended to be prevented by the Act. Similarly, the word "colored" must be held to include any artificially produced change in the natural color of the substance "in a manner whereby damage or inferiority is concealed," even if the change is, as in this case, a removing of color. This is the evident intent of the statute. The Act is essentially remedial, and its evident purpose is not to be defeated by any narrowness of construction. *Johnson v. Southern Pacific Co.* 196 U. S. 1. There was evidence that bleached flour did not improve with age in the manner characteristic of unbleached flour, nor did it, as the claimant contended, suddenly take on the condition of properly aged flour which had not been subjected to the bleaching process. That in dough made from bleached flour the gluten never attained the toughness found in dough from unbleached and properly aged flour, and that this toughness was a valuable property in the making of bread. In other words, that as an ultimate result of the mixing of the flour with nitrogen peroxide gas the bread making quality had been injuriously affected. We are not concerned with the opposing testimony. It was for the jury to determine the fact

and the court did not err in refusing to peremptorily instruct for the claimant so far as the claim of adulteration was based on the first subdivision before quoted.

The claim of adulteration under the fourth subdivision presents a different question. There is evidence that flour made from new wheat is darker in color than the flour made from wheat which has gone through an incipient fermentation or sweating process in the stack, and second, through a similar process after threshing. This involves time. Also, that freshly milled flour is darker than it subsequently becomes when kept for a certain period of time. That clear flour is darker than straight flour and straight flour is darker than patent flour. That color is to some extent an index of the quality of the flour, and as such influences the ordinary purchaser. That all grades of bleached flour are whiter than unbleached. In this way the index of color becomes unreliable and a purchaser may take the bleached straight for unbleached patent flour. With the evidence on which the inferiority of the bleached flour is claimed, this it is contended, brings the case within the fourth subdivision of Sec. 7. Opposed to this, it appears that color is at best an uncertain index of quality, and that dealers in flour use other means to ascertain quality. That the color of bleached flour is distinct from that of unbleached flour; the dead white of the bleached is contrasted with the cream white of the unbleached. That bleaching of flour does not obliterate the differences in appearance of different grades of bleached flour. That while patent flour obtains a higher price in the market than straight flour this is not due to any superiority in patent flour from a nutritious standpoint but is due to the fact that bread baked from it is whiter in appearance and, hence, more pleasing to the eye. This esthetic result can be obtained by a certain process of conditioning the wheat and milling the flour. Was it the intention of the statute that this process should have a monopoly? Whiteness in flour is a desirable end in and of itself. Its connection with flour of any particular grade is purely incidental. We are not persuaded that by the bleaching process flour is so colored as to conceal inferiority, or that by it, flour is adulterated within the intent of subdivision four of Sec. 7 of this Act.

The court submitted to the jury the charge contained in the libel that this flour was misbranded, and in effect, instructed the jury that they should find for the Government if the flour was not a patent flour or was not made from first quality hard wheat. This was excepted to and is assigned as error. The contention of the plaintiff in error, as presented to the trial court by various requests for instructions, is that no evidence was introduced tending to prove that the seized flour was not a patent flour, and that the issue tendered by the libel as to the quality of the wheat only went to the question whether it was hard or soft wheat, and that there was no evidence that the wheat was soft. It will serve no useful purpose to review at length the evidence. It suffices to say that it appears that the seized flour contains ninety per cent of the flour content of the wheat; that there is no fixed standard as to the percentage of the flour content which may be properly termed patent flour. When the process first originated a relatively low percentage was called patent flour; as improvements were made in the methods of manufacture a higher percentage was customarily so labeled. Different mills

adopt different standards, varying in accordance with the efficiency of their methods of manufacture. The quality of the wheat milled also enters into the question. The better the wheat the higher the percentage of the flour content that may properly be classed as patent flour. The case of the Government rests entirely on the evidence of some millers that in their opinion no greater percentage than eighty-five per cent can be properly classed as patent flour. This evidence is based upon the experience of those witnesses with different machinery and wheat, and is not predicated upon the claimant's methods of manufacture. There is a concurrence of the witnesses that the term "patent flour" does not connote any fixed or maximum percentage of the flour content of the berry. In other words, by patent flour is meant flour containing less than the total of the flour content of the wheat. Giving those words that signification there was no evidence of falsity, and the claimant was entitled to have that issue withdrawn from the jury by a peremptory instruction in its favor.

It was charged in the amended libel that the seized flour was misbranded in that it was labeled as made of the first quality of hard wheat, whereas, in truth it was made in whole or in part of soft wheat. This charge was denied in the answer. The evidence adduced in its support is that the flour was milled from No. 2 Turkey red wheat and was not of the first quality, but that no soft wheat entered into its composition. The trial court, in substance, instructed the jury that if the wheat was not of the first quality the charge of misbranding was sustained. Fairly construed the libel tendered the issue of soft wheat as distinguished from hard wheat. The pleader assumed that it was incumbent upon him to specify the particular in which the branding was false. If it be permissible to so specify and failing to support the specification, to prove falsity in another particular within the general averment of falsity, then the specification serves but to draw the attention of the defendant from the actual point of controversy and to mislead. It was error to submit the charge of misbranding to the jury.

Errors are assigned on various rulings in the admission of testimony, but as the pages of the record which presented the testimony objected to are not stated in the brief of the plaintiff in error, as required by rule 24 of this Court, we deem it unnecessary to consider them. *Hoge v. Magnes*, 85 Fed. 355-8.

The constitutionality of the Food and Drugs Act is attacked by the plaintiff in error and was exhaustively argued. The point of the attack is that the statute as construed by the trial court applied to food products in fact entirely innocuous and which could not possibly be injurious to health nor deceptive. As we have not so interpreted the statute, it is not necessary to express any opinion as to the validity of a statute excluding from interstate commerce harmless food products which are offered for sale without deception.

The judgment below must be reversed and the case remanded for a new trial, and it is so ordered.

Filed January 23, 1913.

(Judgment in Cause No. 3533.)

And on the twenty-third day of January, A. D. 1913, in the record of the proceedings on said Circuit Court of Appeals is a judgment in Cause No. 3533, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. December
Term, 1912. Thursday, January 23, 1913.

LEXINGTON MILL AND ELEVATOR COMPANY,
a corporation, claimant, Plaintiff in Error,
No. 3533. vs.
THE UNITED STATES OF AMERICA. }

In Error to the District Court of the United States for the Western District of Missouri.

This cause came on to be heard on the transcript of record from the District Court of the United States for the Western District of Missouri, and was argued by counsel.

On consideration whereof, it is now here ordered and adjudged by this Court, that the judgment of the said District Court, in this cause, be, and the same is hereby, reversed without costs to either party in this Court.

It is further ordered that this cause be, and the same is hereby, remanded to the said District Court with directions to grant a new trial.

January 23, 1913.

(Decree in Cause No. 3534.)

And on the twenty-third day of January, A. D. 1913, in the record of the proceedings of said Circuit Court of Appeals is a decree in Cause No. 3534, in the words and figures following, to-wit:

United States Circuit Court of Appeals, Eighth Circuit. December
Term, 1912. Thursday, January 23, 1913.

LEXINGTON MILL AND ELEVATOR COMPANY,
claimant, Appellant,
No. 3534. vs.
THE UNITED STATES OF AMERICA. }

Appeal from the District Court of the United States for the Western District of Missouri.

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Western District of Missouri, and was argued by counsel.

On consideration whereof, it is now here ordered, adjudged and decreed by this Court, that the appeal from the said District Court, in this cause, be, and the same is hereby, dismissed without costs to either party in this Court, for the want of jurisdiction.

January 23, 1913.

(Clerk's Certificate.)

United States Circuit Court of Appeals, Eighth Circuit.

I, John D. Jordan, Clerk of the United States Circuit Court of Appeals for the Eighth Circuit, do hereby certify that the foregoing transcript composed of three volumes, Volume I consisting of pages a

to 1074, inclusive; Volume II consisting of pages 1075 to 2149, inclusive, and Volume III consisting of pages 2150 to 2163, inclusive, contains the transcript of the record from the District Court of the United States for the Western District of Missouri, as printed pursuant to the stipulation of the parties and upon which record said causes were heard, and full, true and complete copies of all the pleadings, record entries and proceedings, including the opinion, in the United States Circuit Court of Appeals for the Eighth Circuit, in certain causes in said Court wherein the Lexington Mill and Elevator Company, Claimant, is Plaintiff in Error, and the United States of America is Defendant in Error, No. 3533, and wherein the Lexington Mill and Elevator Company, Claimant, is Appellant, and The United States of America is Appellee, No. 3534, as full, true and complete as the originals of the same remain on file and of record in my office.

I do further certify that on the twenty-sixth day of March, A. D. 1913, a mandate was issued out of said Circuit Court of Appeals in each of said causes directed to the District Court of the United States for the Western District of Missouri.

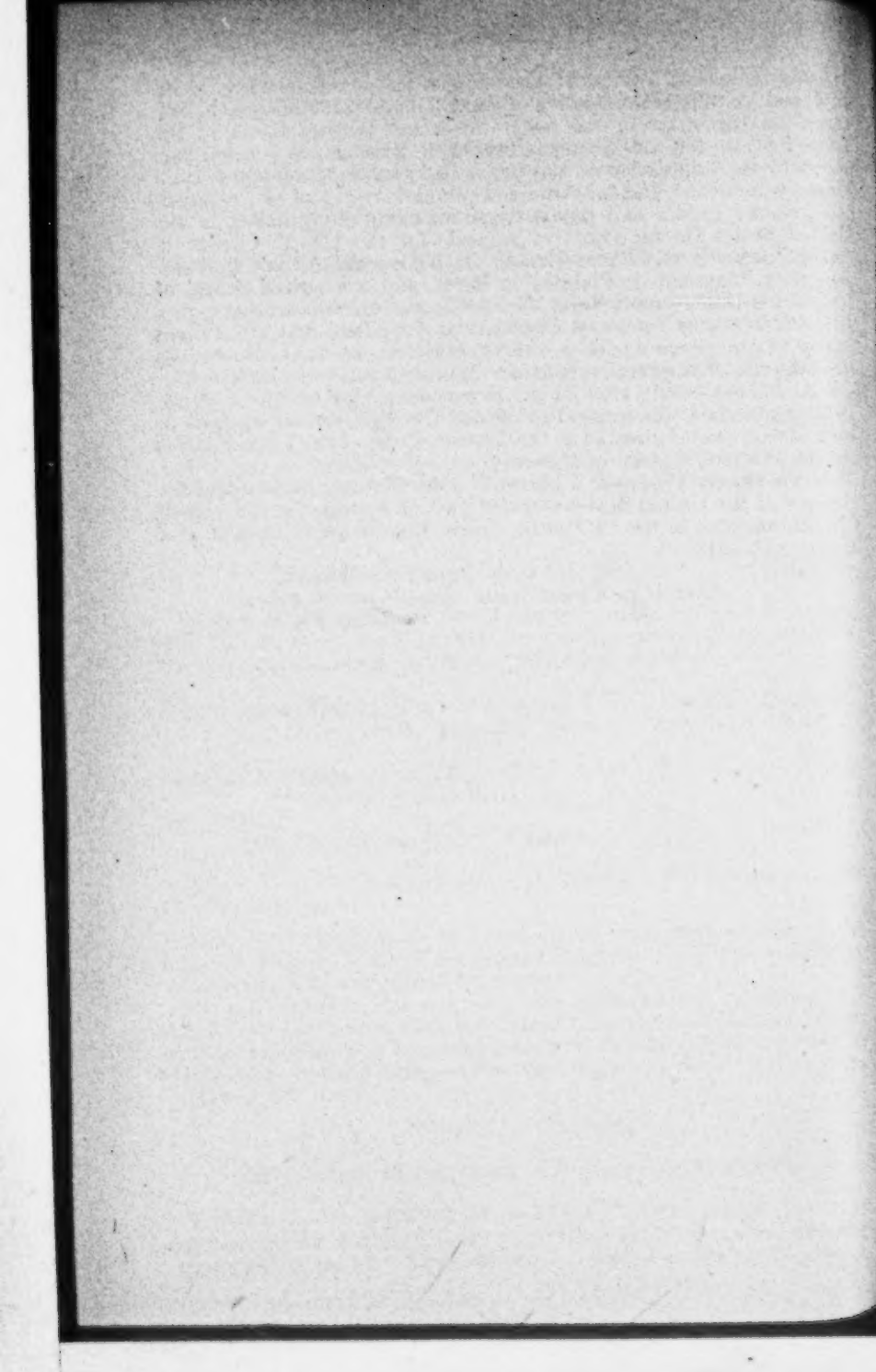
In Testimony Whereof, I hereunto subscribe my name and affix the seal of the United States Circuit Court of Appeals for the Eighth Circuit, at office in the City of St. Louis, Missouri, this third day of May, A. D. 1913.

[SEAL.]

JOHN D. JORDAN,

*Clerk of the United States Circuit Court of Appeals
for the Eighth Circuit.*

○



2170

In the Supreme Court of the United States.

October Term, 1912.

THE UNITED STATES OF AMERICA, PETITIONER,
v.
THE LEXINGTON MILL & ELEVATOR COMPANY,
claimant, respondent. } No. 1107.

Stipulation as to return to writ of certiorari.

It is hereby stipulated by counsel for the parties to the above-entitled cause that the certified copy of the record now on file in the Supreme Court of the United States shall constitute the return of the clerk of the United States Circuit Court of Appeals for the Eighth Circuit to the writ of certiorari granted herein.

J. C. McREYNOLDS,
Attorney General.

E. P. SMITH,
BRUCE ELLIOTT,
A. E. HELM,
E. L. SCARRITT,
Counsel for Claimant.

JUNE 2, 1913.

If certified record is incomplete it is to be made so by further stipulation.

(Copy of telegram attached to stipulation.)

WASHINGTON, D. C., June 7, 1913.

U. S. ATTORNEY, *Kansas City Mo.:*

Record filed Supreme Court all received from clerk below. You and he know whether it comprises everything in case. Government desires complete record Supreme Court and if incomplete will stipulate to add thereto anything omitted. Stipulation as to return is ordinary formal one always entered into when court grants certiorari.

Answer.

McREYNOLDS.

(Endorsed:) No. 3533. Lexington Mill and Elevator Company, a corporation, claimant, plaintiff in error, vs. The United States of America. Stipulation as to return to writ of certiorari. Filed Jun. 12, 1913. John D. Jordan, clerk.

2171 UNITED STATES OF AMERICA, ss:

The President of the United States of America to the honorable the Judges of the United States Circuit Court of Appeals for the Eighth Circuit, greeting:

Being informed that there is now pending before you a suit in which Lexington Mill & Elevator Company, a corporation, claimant,

is plaintiff in error, and the United States of America is defendant in error, No. 3533, which suit was removed into the said Circuit Court of Appeals by virtue of a writ of error to the District Court of the United States for the Western District of Missouri, and we, being willing for certain reasons that the said cause and the record and proceedings therein should be certified by the said Circuit Court of Appeals and removed into the Supreme Court of the United States,

2172 Do hereby command you that you send without delay to the said Supreme Court, as aforesaid, the record and proceedings in said cause, so that the said Supreme Court may act thereon as of right and according to law ought to be done.

Witness the Honorable Edward D. White, Chief Justice of the United States, the 31st day of May, in the year of our Lord one thousand nine hundred and thirteen.

[SEAL.]

JAMES H. MCKENNEY,
Clerk of the Supreme Court of the United States.

2173

Return to writ.

UNITED STATES OF AMERICA,

Eighth Circuit, ss:

In obedience to the command of the within writ of certiorari and in pursuance of the stipulation of the parties, a full, true, and complete copy of which is hereto attached, I hereby certify that the transcript of record furnished with the application for a writ of certiorari in the case of Lexington Mill and Elevator Company, a corporation, claimant, plaintiff in error, vs. The United States of America, No. 3533, is a full, true, and complete transcript of all the pleadings, proceedings, and record entries in said cause.

In testimony whereof I hereunto subscribe my name and affix the seal of the United States Circuit Court of Appeals for the Eighth Circuit, at office in the city of St. Louis, Missouri, this twelfth day of June, A. D. 1913.

[SEAL.]

JOHN D. JORDAN,
*Clerk of the United States Circuit Court of Appeals
for the Eighth Circuit.*

(Indorsed:) File No. 23382. Supreme Court of the United States, No. 1107, October term, 1912. The United States of America vs. Lexington Mill & Elevator Company. Writ of certiorari. Filed Jun. 12, 1913. John D. Jordan, clerk.

(Indorsement on cover:) File No. 23682. Supreme Court U. S. October term, 1913. Term No. 548. The United States of America, petitioner, vs. Lexington Mill & Elevator Company. Writ of certiorari and return. Filed June 16, 1913.

In the Supreme Court of the United States.

OCTOBER TERM, 1912.

THE UNITED STATES OF AMERICA, PETITIONER,

v.

LEXINGTON MILL & ELEVATOR COMPANY,
claimant, respondent.

No. —.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE EIGHTH CIRCUIT.

To the Chief Justice and Associate Justices of the Supreme Court of the United States:

The Attorney General, on behalf of the petitioner, respectfully prays that a writ of certiorari be issued to review the judgment of the Circuit Court of Appeals in this case.

THE QUESTION.

The question involved is whether the food and drugs act prohibits the addition of any poisonous ingredient in any quantity whatever to an article of food, or whether poison may be added to any article of food in the discretion of manufacturers if the quantity added in any one article of food is so small

that it can not be positively demonstrated that the particular article of food may be injurious to health.

The answer depends upon the construction of section 7 of the food and drugs act of June 30, 1906 (34 Stat., 768), the pertinent portion of which reads:

SEC. 7. That for the purposes of this act an article shall be deemed to be adulterated—
* * *. In the case of food.

* * * * *

Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health. * * *

STATEMENT OF FACTS.

The libel was filed in the District Court for the Western District of Missouri to condemn 625 sacks of bleached flour, adulterated and misbranded, but only so much of the case is stated as is necessary to show the foregoing question.

The flour was bleached by electricity, by the Alsop process, and the libel charged that the flour was "caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to wit, nitrites or nitrite reacting material, nitrogen, peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances."

The Alsop process was described by the Court of Appeals as follows:

* * * By it nitrogen peroxide gas is formed by electric discharges. This gas mixed with air is brought into contact with the

freshly milled flour, with the result of bleaching it. The method is this: in a small chamber one electrode is fixed; the other is given a reciprocating motion so as to alternately touch and separate from the fixed electrode. A current of high potential is used. The circuit is completed by the contact. Separation of the electrodes results in an arc. The inert nitrogen of the air is oxidized and nitrogen peroxide gas formed. This gas diluted by mixture with air is conveyed to a box or agitator, through which the flour is permitted to fall and the bleaching is at once effected. The chemical reaction seems to be as follows: The nitrogen peroxide gas coming in contact with the moisture of the flour splits and forms nitric and nitrous acids, both oxidizing agents, but the nitric acid the more powerful. The nitric acid certainly and the nitrous acid probably unite with the coloring matter of the flour and bleach it. Nitrites are formed by the union of the nitrous acid with the bases in the flour and nitrates by the union of the nitric acid with those bases. * * * (Rec., Vol. III, 2156.)

It was admitted on both sides that nitrites are qualitatively poisonous. The Government contended that the existence of these poisonous nitrites in the most minute quantity rendered the flour adulterated, and also that the amount found produced injurious effects upon the consumers of the flour. The claimant contended that the nitrites were contained in such minute quantities that they could have no possible injurious effect upon the consumers of the flour.

The point upon which the writ of certiorari is asked grows out of the charge of the court construing the statute. The court said:

It is the claim of the Government that if the flour contained any added poisonous or other added deleterious ingredient of a kind or *character* which may render (that is, which is capable of rendering) such article injurious to health, it is adulterated and should be condemned for confiscation.

On the other hand, it is the claim of the claimant that even though the flour contain added poisonous or other added deleterious ingredients, it may not be condemned unless it shall further appear that such added substances are in such quantity that the flour shall be thereby rendered injurious to health.

* * * * *

It is not conceivable that the Congress of the United States when it passed this act intended that producers and vendors might continue to add poisons and other injurious substances to food so long as the quantity added was not sufficient to produce observable poisonous or injurious effects upon the health of consumers, nor is it conceivable that Congress intended to require that the Government before proceeding to condemnation of an article of food as adulterated must prove that it contains added poisonous or other added deleterious ingredient in such a quantity as would render such article injurious to health. It is known to everyone that there is no method of ascertaining or measuring the effect of the consumption of such substances

in food upon the public health or upon the health of any particular individual. It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances.

* * * Therefore the court charges you that the Government need not prove that this flour or foodstuffs made by the use of it would injure the health of any consumer. It is the *character*—not the quantity—of the added substance, if any, which is to determine this case. (Rec., Vol. II, pp. 2022, 2023.)

In other words, the trial court held that the statute forbade the addition of any poison to any article of food, even though the quantity be minute and the resulting injury to health from the particular article of food be incapable of measurement.

The Court of Appeals in reversing the case and ordering a new trial, took the opposite view, and held that the poisonous ingredient must be added in such quantity that the jury must find that there is "possibility of injury to health due to the added ingredient and in the quantity in which it is added."

REASONS FOR THE ALLOWANCE OF THE WRIT.

The statute involved is a health statute passed for the protection of the entire country, and the proper construction of the section here in question is of vital importance both to the public and to the manufacturer.

(a) The construction of the statute adopted by the Court of Appeals will be exceedingly dangerous to the public.

It will be noticed that the statute was not directed against poisons which occur naturally in foods, but against those which are artificially added. All such poisons were forbidden. If the manufacturer is to be permitted to add poison at his pleasure, so long as the injurious effect of each article to which the poison is added is incapable of measurement, the purpose of the statute is defeated, and considering the large number of different articles of food ordinarily consumed by the individual in the course of a day, each of which may contain poison, there is grave danger of wholesale poisoning.

(b) Such construction will render the statute difficult if not impossible of enforcement.

Many articles of food now contain poisons, injurious in themselves, but in such small quantities that it is impossible to trace any particular injury to the consumption of a specific article of food. Is there no protection from such foods? For instance: Is the vendor of milk which contains formaldehyde to be punished if the consumer is made sick by drinking it?

If minute quantities of nitrites may be added to flour, of boric acid to eggs, of chromate of lead to the coffee bean, of sulphate of copper to peas, of arsenic or lead to baking powder, of Martius yellow to macaroni, of wood alcohol to flavoring extracts, so long as it is not provable that enough in each case has been added to possibly injure the health of some one, then the statute is incapable of enforcement.

Again, some of these poisons, as arsenic, accumulate in the system, and a person may ultimately be

seriously poisoned; but there is no remedy, because it can not be said that enough poison was contained in one article eaten at one time to cause injury.

(c) If actual injury must be shown, the operation of the law will be uncertain, depending upon the susceptibility of each consumer. Will any standard of resistance be adopted? If so, will it be that of the sickly infant or that of the strong vigorous man?

(d) A decision on this paragraph of the statute will be of assistance also in construing other sections of the law. For instance, in *443 Cans of Frozen Egg Product v. United States* (226 U. S., 172), decided at this term on jurisdictional grounds, it was contended by plaintiff in error that food could not be condemned as filthy and decomposed under paragraph 6 of the section here involved unless it was so far gone as to be actually injurious to health.

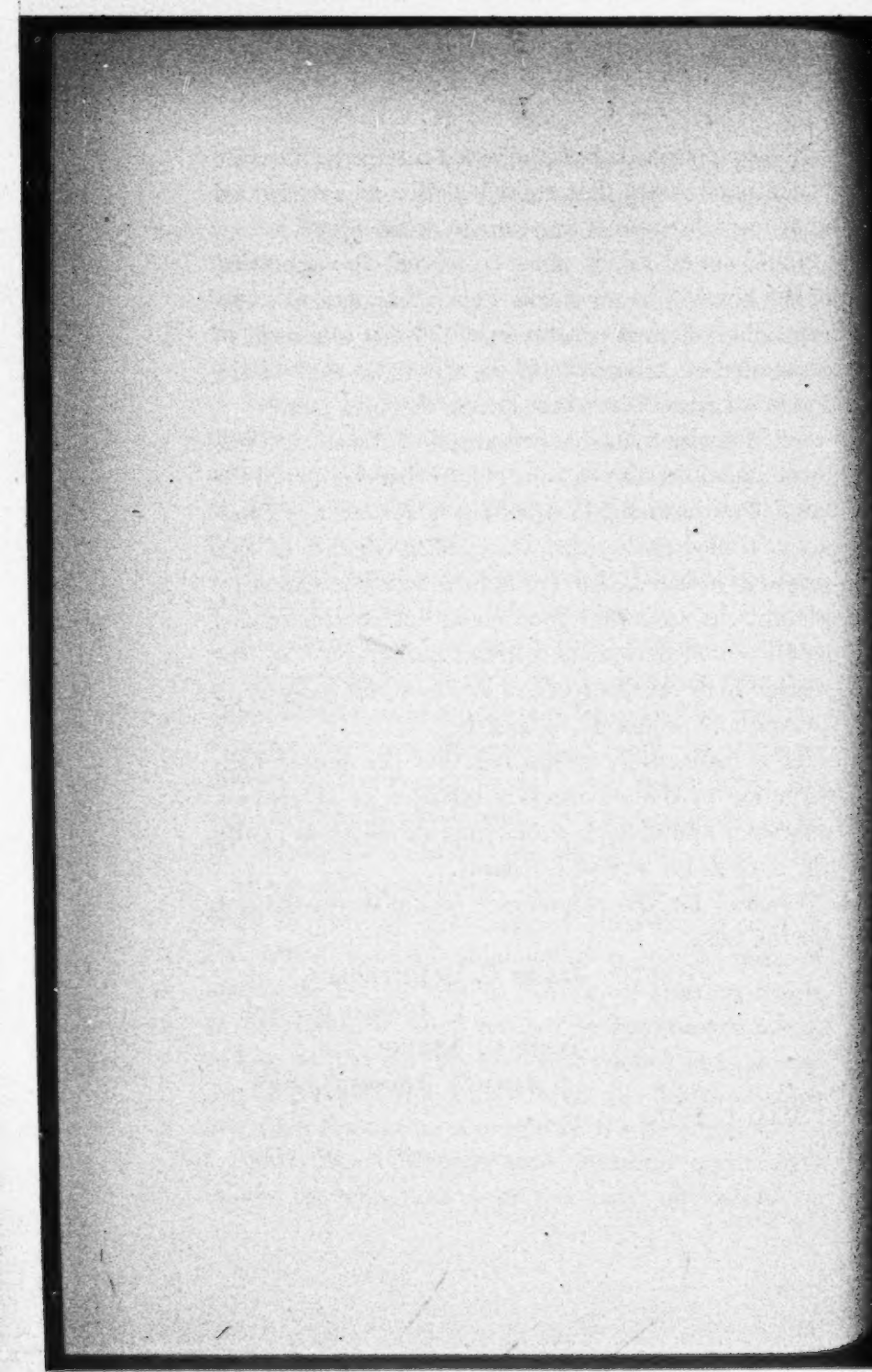
It is respectfully submitted that the proper construction of the statute is a question of so grave a character and of such public importance as to justify the issue of the writ of certiorari.

Counsel for the respondent concur in the petition for the writ.

JAMES C. McREYNOLDS,
Attorney General.

JESSE C. ADKINS,
Assistant Attorney General.

MAY 1, 1913.



IN THE
Supreme Court of the United States

DECEMBER TERM, 1912.

No. 1107.

THE UNITED STATES OF AMERICA, *Petitioner,*

vs.

LEXINGTON MILL & ELEVATOR COMPANY, *Claimant,*
Respondent.

IN RE PETITION FOR WRIT OF CERTIORARI TO
REVIEW THE JUDGMENT OF THE CIRCUIT
COURT OF APPEALS FOR THE EIGHTH CIR-
CUIT.

*To the Chief Justice and Associate Justices of the
Supreme Court of the United States:*

The defendant in error joins with the Attorney-
General in requesting that writ of certiorari be is-
sued to review the judgment of the Circuit Court of
Appeals in this cause.

THE QUESTIONS PRESENTED BY THE RECORD.

1. By the record in the Circuit Court of Appeals there were presented the questions as to whether the statute under which the proceeding was brought and the flour sought to be condemned was a valid exercise of the power possessed by Congress under the statute of the United States, and whether the court erred in giving the following instruction:

“The statute under which this proceeding was brought in the case now being tried is an enactment of the Congress of the United States approved by the then President June 30, 1906 (four years ago). This statute as to its validity is challenged by the claimant herein, but with that question you have no concern, other than to observe it, because the court holds that the Congress of the United States, with the approval of the President, had the power, under the Constitution of the United States, to enact the statute that was enacted, and under which we are proceeding, and the court holds and so directs you that the statute is a valid enactment and to be enforced in any and all cases where the evidence and the facts come within the wording of the statute.”

2. If the statute in question is valid, did the trial court err in its instruction to the jury as follows:

“The word ‘poisonous’ as an adjective conveys a descriptive meaning and is used in a qualitative sense and not in a quantitative sense. That is, it refers to the kind of the substance and not

to the quantity of the substance. This idea or meaning is further emphasized and rendered more certain by the qualifying clause 'Which may render such article injurious to health.' It does not say 'Which does render such article injurious to health.' But manifestly it was the purpose of Congress to include in this distinction all ingredients of a poisonous character to which in their essential nature might be ascribed the tendency to affect health injuriously."

3. If the statute in question is valid, did the trial court err in its instruction to the jury as follows:

"It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances."

4. If the statute in question is valid, did the trial court err in its instruction to the jury as follows:

"The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the Government need not prove that this flour or food-stuffs made by the use of it would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine the case."

5. If the statute in question is valid, did the trial court err in refusing to instruct the jury as requested, as follows:

“The law does not prohibit the adding of nitrites or nitrite reacting material in flour, and the jury cannot find for the Government or against the claimant even if it is shown that nitrites or nitrite reacting material was added to the flour in question, unless they believe from a preponderance of the evidence that such addition, if any, rendered such flour injurious to the health of those who might consume the bread or other foods made from said flour.”

The defendant in error joins with the Attorney-General in respectfully submitting that the validity of the statute in question and its proper construction are questions of so grave a character and of such public importance as to justify the issuance of the writ of certiorari.

LEXINGTON MILL & ELEVATOR COMPANY,

By EDWARD P. SMITH,

BAUER S. ELLIOTT,

A. E. HELM,

E. L. SCARRITT,

Its Attorneys.

In the Supreme Court of the United States.

OCTOBER TERM, 1912.

THE UNITED STATES OF AMERICA, PETI-
tioner,

v.

LEXINGTON MILL & ELEVATOR COM-
pany, claimant, respondent.

No. 1107.

On Writ of Certiorari to the United States Circuit Court of Appeals for the Eighth Circuit.

MOTION BY THE UNITED STATES TO ADVANCE.

The Attorney General, on behalf of the United States, moves to advance this cause under section 5 of rule 26, because the case is one in which the United States are concerned and which involves a matter of general public interest.

The libel was filed in the District Court for the Western District of Missouri to condemn 625 sacks of flour bleached by electricity by the so-called Alsop process, which charged that the flour was—

caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to wit, nitrites or nitrite reacting material, nitrogen,

peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances,

and that the flour was both adulterated and misbranded.

The question is whether the Food and Drugs Act prohibits the addition of any poisonous ingredient in any quantity whatever to an article of food, or whether poisons may be added to any article of food in the discretion of manufacturers if the quantity added in any one article of food is so small that it can not be positively demonstrated that the particular article of food may be injurious to health.

There are numerous other cases involving all manner of foods in which the principle of the decision of the Circuit Court of Appeals in this case is involved. For this reason, as well as the great importance of the present case in itself, the motion to advance is made.

We are authorized to state that counsel for respondent concurs.

JAMES C. McREYNOLDS,
Attorney General.

JESSE C. ADKINS,
Assistant Attorney General.

JUNE 9, 1913.



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APPENDIX D.

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Extract from opinion of Court of Appeals on issues under subdivision 4 of section 7 of food and drugs act.

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*Blyth - Foods, Their Composition
and Analysis. Sixth Edition.
(1909 pp 14 et seq.)*

In the Supreme Court of the United States.

OCTOBER TERM, 1913.

THE UNITED STATES OF AMERICA, PETI-
tioner,
v.
THE LEXINGTON MILL AND ELEVATOR
Co., respondent.

} No. 548.

**CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF
APPEALS FOR THE EIGHTH CIRCUIT.**

BRIEF ON BEHALF OF THE UNITED STATES.

I.

In April, 1910, The United States filed a libel (subsequently amended) in the District Court, Western District of Missouri, under section 10 of the food and drugs act of June 30, 1906 (34 Stat., 768, ch. 3915; see Appendix A), seeking seizure and condemnation of 625 sacks of flour shipped from Lexington, Nebr., to Castle, Mo., and there found in original, unbroken packages in possession of Terry, the consignee. (R., 6, 11, 16.)

The flour was seized (R., 9, 10); the consignee did not appear; but the Lexington Mill & Elevator Co., the manufacturer and vendor, appeared as claimant and answered (R., 15).

Upon the issues raised by the pleadings, there was trial to a jury (R., 11), a verdict for the Government (R., 21, 22), a decree of condemnation (R., 22). On writ of error, the Circuit Court of Appeals reversed this action and directed a new trial. (R., 2162.) The case is here upon certiorari. (R., 2166.)

The amended libel charged that the flour was both adulterated and misbranded. The adulteration charges were made on subdivisions 1, 4, and 5 of section 7 relating to food, and alleged that, as a result of the so-called Alsop process for bleaching, the flour (1) contained poisonous or deleterious ingredients which might render it injurious to health; (2) was mixed, colored, and stained, whereby damage and inferiority were concealed; and (3) had a substance mixed and packed with it so as to reduce, lower, and injuriously affect its quality and strength. (R., 13, 14.)

The answer admitted the treatment, denied adulteration, and set up the unconstitutionality of the act. (R., 15-18.)

There were two separate special verdicts, one that the flour was adulterated, the other that it was misbranded. (R., 21, 22.)

In the 168 assignments of error (R., 2097-2139) claimant maintained that the District Court erred, first, in certain rulings on the admission of evidence; second, in instructions as to adulteration; third, in those as to misbranding; and fourth, in holding the act constitutional. What assignments in fact were relied on does not appear.

Claimant failed to specify the pages of the record containing the testimony objected to (R., 2162), and, as this was in violation of its Rule 24, the Court of Appeals refused to examine the action of the District Court in respect thereto.

The issues as to misbranding are not dicussed herein.

This brief is confined to two subjects, (1) the correctness of instructions given and refusal to give those requested by claimant on adulteration, and (2) the constitutionality of the statute.

The Court of Appeals held that, before food can be deemed adulterated, within subdivision 5, section 7, by the addition of poison, the Government must establish its existence *in sufficient quantity* to render food injurious to health; and that it does not suffice merely to show the presence of added poison of an injurious *character*. (R., 2158.) Under that construction the statute does not forbid the artificial combination with food of a minute quantity of poison, harmful in nature; the prohibition only applies when the quantity is such that,

if the food is eaten, an observable injury would probably result. The correctness of this interpretation is the point of chief importance.

No error was found in the instructions on the issue as to whether the flour had been mixed, colored, and stained to conceal damage and inferiority under subdivision 4, section 7; but the Court held the weight of evidence on this point was in favor of claimant (R., 2161), thus overruling the lower Court.

The Court of Appeals held further that the jury should determine whether a substance had been so mixed and packed with the flour as to reduce, lower, or injuriously affect its quality and strength within subdivision 1, section 7, and no error was found here. (R., 2160-2161.)

The constitutionality of the act was not affirmatively ruled upon. (R., 2162.)

The Government maintains—

(1) That the interpretation of subdivision 5, section 7, by the Court of Appeals was erroneous.

(2) That that Court erred in passing upon the weight of evidence as to concealment of inferiority.

(3) That it was right in sustaining the District Court on the issue as to the reduction of, lowering, and injuriously affecting the quality and strength of the flour by mixing and packing.

(4) That the food and drugs act is constitutional.

II.

THE SEIZED FLOUR WAS ADULTERATED WITHIN SUBDIVISION 5, SECTION 7, OF THE FOOD AND DRUGS ACT RELATING TO FOOD.

Allegation of adulteration.

The amended libel alleges that the seized flour was adulterated—

(c) In that by the treatment as aforesaid (the Alsop process) the said flour has been caused to contain added poisonous or other added deleterious ingredients, to wit, nitrites or nitrite reacting material, nitrogen peroxide, nitrous acid, nitric acid, and other poisonous and deleterious substances, which may render such flour injurious to health. (R., 14.)

Alsop process.

It is not disputed that the flour was subjected to this process. (Libel, R., 12, 13; answer, pars. 5 and 10; R., 16, 17.)

The libel alleges that it consists “of the generation by means of electricity of nitrogen peroxide gas, which is mixed with atmospheric air, and the mixture brought into contact with the flour” (R., 12-13), and the answer, that it “consists of generating in rapid succession a flaming electric discharge in a current of air in proximity to such electric discharge, and in conducting the air as modified by such discharge into the presence of the flour as it is being continuously passed through a revolving reel or agitator.” (Par. 10, R., 17.)

There is a description of the treatment in *Naylor v. Alsop Process Company* (168 Fed., 911), which was a patent suit; and the evidence in the case at bar tends to show that the patent specifications relating to the effect produced are untrue. (R., 159, 160, 838, 839, 986, 987, 1300, 1450, 1458, 1776, 1777.) Further detailed descriptions are given in the testimony. (R., 42, 43, 47, 48, 58, 975-977.)

The Court of Appeals also described the process. (R., 2156.)

Evidence as to poison.

Nitrogen peroxide (NO_2 or N_2O_4) is a corrosive gas of a dark brown or brownish-red color and has a pungent, characteristic odor. (R., 43, 621, 888, 891.) The Alsop process generates this gas and brings it into contact with the moisture content of the flour; the resulting chemical reaction produces nitric and nitrous acids. (R., 47, 48, 119, 152, 325-326, 861, 891, 1653, 1739-1741.) These combine with bases in the flour, forming nitrites and nitrite reacting materials of various kinds. (R., 58, 61, 152, 892, 920.) Some of the nitrite reacting material is nitrogen peroxide, which does not combine chemically with bases in the flour, but remains intermingled with it as a gas. (R., 715-722, 811.)

Witnesses testified that analyses showed the presence in this flour of nitrites, or nitrite reacting material, in the proportion of from 1.8 to 2.3 parts, computed "as nitrogen," or from 5.904 to 7.544 parts, computed as nitrogen peroxide, per

million. (R., 150, 232, 236.) Nitrous acid was extracted from bread made from the flour. (R., 712-714.)

There was specific evidence that nitrites and nitrite reacting materials are poisonous (R., 43, 47, 290, 326, 621, 626, 809-811, 816, 891, 897, 898, 933-934, 1657), that their addition in any quantity to flour tends to make it, when converted into bread, injurious to the health of consumers and that it did render the seized flour injurious. (R., 293, 619-626, 816-818, 869, 893, 894, 897, 898, 933-934.) There was further testimony to the effect that no food not in a state of putrefaction normally contains nitrites. (R., 284-289, 625.)

Testimony for the Government shows that bleaching necessarily added to the flour substances of such poisonous character that the *ingestion of any quantity, however slight*, would produce injurious physiological effects, and that by their addition the flour was rendered injurious to health. (R., 43, 47, 289-890, 326, 621-623, 626, 809, 811, 816, 891, 897, 898, 933-934, 1653-1658.)

On the other hand, witnesses for claimant testified that there is no substance which can be recognized as a poison in small doses or can be said to be poisonous unless there is enough to produce symptoms either from a single dose or from extended use (R., 1063, 1099, 1285, 1289, 1462-1466, 1570, 1795, 1808-1811); that all foods are poisonous if consumed in sufficiently large quantities (R., 1096, 1461, 1544); that the

existence of poison in a food must be determined by some physiological effect (R., 1539); that flour bleached by the Alsop process contains no nitrous or nitric acid or nitrites (R., 1031, 1456, 1467, 1507, 1519, 1792); that nitrites taken internally disappear in the process of digestion and do not affect the blood (R., 1039, 1274, 1275, 1506, 1598, 1792-1795, 1841); that nitrite reacting material has been found in naturally aged, unbleached flour (R., 1020, 1451); that nitrites are found in the air, in saliva, and in articles of food other than flour (R., 1024, 1025, 1535, 1597, 1627, 1837, 1921); and that the process of bread making causes a reduction of the quantity of nitrite reacting material in bleached flour. (R., 1025-1026, 1453.)

Instructions.

The jury was instructed (Appendix B) (a) that the statute prohibits the addition of any substance so poisonous in its nature as to render food capable of injuring health, and (b) that if the evidence showed that the flour by bleaching had been caused to contain in any quantity a poisonous substance of that character, to find it adulterated. (R., 2021-2024.)

Claimant's contention that the Government must show the presence of added poisonous substances in such quantities as to cause demonstrable injury is fairly reflected in its requests for instructions numbered 11 and 16—refused by the Court. (R., 2009, 2011.)

Opinion of Court of Appeals.

The gist of the opinion on this branch of the case (Appendix C) is that the District Court erred in construing the statute to prohibit the presence in food of an added *qualitatively* poisonous substance, of a character capable of injuring health, thereby taking from the jury the question whether the poisonous substance was in such *quantity* that the food containing it might injure health. (R., 2157-2160.

Point at issue.

In section 6 of the act it is provided that—

The term “ food,” as used herein, shall include all articles used for food, drink, confectionery, or condiment by man or other animals, whether simple, mixed, or compound.

This flour was “ food ” within that definition.

It was sufficiently shown to submit to the jury, that bleaching by the Alsop process caused this flour to “ contain ” more than $7\frac{1}{2}$ parts of nitrites or nitrite reacting materials per million; or, otherwise stated, that each 100 pounds *contained* a little more than $5\frac{1}{4}$ grains of such materials, computed as nitrogen peroxide.

It was further shown that nitrites and nitrite reacting materials are “ poisonous ” and capable of *rendering an article injurious to health*. The bleaching device manifestly causes an *addition*, within the statutory provision, of a poisonous ingredient.

Upon the Government's construction, there was plainly evidence which required submission to the jury of the issues under subdivision 5 of section 7. If it is unnecessary to show that the *quantity* of added poisonous substances is *enough* to injure, then the Court of Appeals was wrong and the District Court right on this branch of the case.

Meaning of subdivision 5.

The Government submits that it was the intention of Congress to prohibit a manufacturer from combining with food ingredients any poisonous ingredient whatsoever of a quality, kind, or character capable of rendering the finished product injurious to health. Congress was dealing with substances *foreign* to foods, not those *naturally* in them. It is matter of public notoriety that *some* manufacturers are inclined to approach the danger line as near as possible without suffering penalties provided by the criminal law.

Congress intended to create a sweeping and absolute prohibition, applicable to all qualitatively poisonous substances, irrespective of quantity, and thus to inhibit manufacturers from experiment, discretion, or guesswork. To construe the statute otherwise would nullify "any." That word is comprehensive and universal, excluding the idea that quantity may be ascertained or varied.

That "any" was used in order to prevent *all* poisonous ingredients from being added to food is further manifest from the description of the pro-

hibited ingredients, as those "which *may* render such article injurious to health." The word "may," in common acceptance, expresses contingency, possibility, or probability, and in a statute ordinarily carries no positive or imperative significance.

If the statute is ambiguous that interpretation ought to be adopted which will carry out its general purpose, to safeguard health. An absolute prohibition more certainly effects this than a partial one limited to cases where specific injury is proved.

The act, as construed by the Government, initiates no novel policy. Prior to its passage, statutes of Pennsylvania, Nebraska, and Ohio prohibited just what the Government now asks this Court to say the Federal statute forbids (Laws of Pennsylvania, 1895, p. 317; Laws of Nebraska, 1897, ch. 99, p. 387; Laws of Ohio, 1890, p. 248; *Commonwealth v. Kevin*, 202 Pa. 23; *Lansing v. State*, 73 Nebr. 124; *State v. Hutchinson*, 55 Ohio St. 573).

If "adulteration" under subdivision 5 depends upon the *quantity* of poisonous material added, consumers of food prepared with bleached flour are deprived of protection, unless the quantity is so great that impairment of health can be clearly traced to the food made from that flour. So interpreted, the fifth subdivision, for all practical purposes, is valueless; for no statute is needed to protect the public from foods generally known to be harmful.

Furthermore, claimant's interpretation would render subdivision 5 impossible of uniform application and probably unenforceable. The statute fixes no standard of purity for foods. The effect of poisons varies widely. A well, strong, mature, and normal person may safely ingest what would be fatal to one otherwise constituted. The diversity in powers of resistance is incalculable. The same poison may affect an individual differently under changed conditions. (R., 1852.) If quantity be the test juries would enforce different requirements as to the amount of poison necessary to impair health. The impracticability of such a test is a strong reason for concluding that Congress intended to forbid the introduction of any poisonous substance capable of injuring health.

As interpreted by the Government, the fifth subdivision is reasonable and accomplishes a cardinal purpose of the act. Being remedial the statute should be liberally construed. (*United States v. Corbett*, 215 U. S., 233; *New York, New Haven & Hartford R. Co. v. Interstate Commerce Commission*, 200 U. S., 861, 391; *Johnson v. Southern Pacific Co.*, 196 U. S., 1.)

Cognate clauses of statute.

In construing part of a statute regard may had to its entire purview. The fourth subdivision of section 8, under the head of food, contains this proviso:

Provided, That an article of food which does not contain any added poisonous or de-

leterious ingredients shall not be deemed to be adulterated or misbranded in the following cases: * * *.

The cases specified have no bearing on the point in hand. It is clear that determination whether a food comes within this proviso is made dependent upon the poisonous or deleterious quality of its added ingredients, and not upon the demonstrated poisonous or deleterious character of the food itself. Conversely foods which contain such ingredients are to be deemed adulterated.

Out of caution, section 7 specially provides that confectionery is adulterated—

If it contain terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound or narcotic drug.

This provision was before the Court of Appeals for the Second Circuit in *French Silver Dragee Co. v. United States* (179 Fed., 824). The presence in confectionery of silver was successfully relied upon by the Government at the trial to establish adulteration; but the Court disposed of the case under the rule of *ejusdem generis*, holding that the statute should be interpreted so that—

* * * in the case of confectionery, as in the cases of food and drugs, the Government should establish, with respect to products not specifically named, that they either deceive, or are calculated to deceive, the pub-

lic or are detrimental to health. (179 Fed. 828.)

The *French Silver Dragee Co.* case was cited below to support the proposition that proof of observable injury to health is necessary to sustain a charge of adulteration under the fifth subdivision of section 7. It is submitted, however, that the Court in that case looked only to the character and kind, not quantity, of the ingredients. It held that the statute must be interpreted to mean—

(2) That the use in confectionery of chrome yellow or other poisonous mineral substance or poisonous color or flavor makes it unlawfully adulterated.

(3) That the use in confectionery of any ingredient whatsoever which is deleterious or detrimental to health makes it unlawfully adulterated.

The Court said further:

It is true that under this construction the third class of cases would include the second. "Any ingredient detrimental to health" undoubtedly includes all poisonous substances. (179 Fed., 828.)

This decision plainly makes the poisonous or deleterious character of ingredients the test for deciding whether confectionery is adulterated.

Legislative history of statute.

While the meaning of the statute may be arrived at by the ordinary rules of construction, an examination of its history fortifies the Government's argument.

The report of the House Committee on Interstate and Foreign Commerce contains the following:

One of the principal objects of the bill is to prohibit in the manufacture of foods intended for interstate commerce the addition of foreign substances poisonous or deleterious to health. The bill does not relate to any natural constituents of food products which are placed in the foods by nature itself. * * * If, however, poisonous or deleterious substances are added by man to the food product, then the bill declares the article to be adulterated and forbids interstate traffic. (H. Rept. 2118, 59th Cong., 1st sess., p. 6.)

This indicates that one object of the act was the exclusion from food of all substances, irrespective of quantity, that are capable of injuring health.

Senate bill 88, which became the food and drugs act, originally considered in the Senate, had the following provision:

In the case of liquors, an article shall be deemed adulterated if it contain any added ingredient of a poisonous or deleterious character. (Cong. Rec., 59th Cong., 1st sess., vol. 40, pt. 1, p. 897.)

A proposed amendment which was rejected struck out the word "added" before "ingredient," so that as amended the clause would have read:

In the case of liquors, an article shall be deemed adulterated if it contain any ingredient of a poisonous or deleterious character. (Cong. Rec., 59th Cong., 1st sess., vol. 40, pt. 3, pp. 2644, 2770.)

In the debate the chairman of the committee in charge of the bill, said:

The word "added" simply means that nothing shall be added to the poisons already existing in the substance. Take any substance. Poisons may be extracted from fruit, from the kernel of the peach, from acids contained in fruits.

* * *

The word "added," after very mature consideration by your committee, was adopted because of the fact that there is to be found in nature's products, as she produces them, poisonous substances, to be determined by analysis. Nature has so combined them that they are not a danger or an evil—that is, so long as they are left in the chemical connection in which nature has organized them; but when they are extracted by the artificial processes of chemistry they become poison. * * *

So, in order to avoid the threat that those who produce a perfectly legitimate article from a natural product might be held liable because the product contained nature's poison it was thought sufficient to provide against the adding of any new substance that was in itself a poison, and thus emphasizing the evils of existing conditions in nature's product. * * * There is a limitation on the word "added." It does not prevent you from adding ingredients to combinations or to single substances; it prevents you from adding poisons or deleterious ingredients; that is all. (Cong. Rec., vol. 40, pt. 2, p. 1131, and pt. 3, pp. 2647, 2758.)

From the foregoing it appears to have been the intention of Congress to include in the prohibitions of the statute all poisonous or deleterious ingredients not naturally inherent in foods.

Court decisions.

In none of the District Court cases deciding food products to be adulterated, under the fifth subdivision of section 7, has the Government been required to prove that the quantity of the added poisonous or deleterious ingredient was sufficient to produce observable effects or symptoms or that health had been observably impaired by the consumption of the food.

This view is illustrated by what was said by the District Court for the Northern District of Illinois, in *United States v. 1,950 Boxes of Macaroni* (181 Fed., 427) :

The question is whether the article proceeded against "contains any added poisonous * * * ingredient which may render it injurious to health." The proof shows macaroni to be composed of wheat flour and water; that to change its natural color and make its appearance more inviting, Martius yellow was added; that this coloring matter is not an ingredient of macaroni, serves no purpose other than to change its color, and is a poison which will kill.

It is the duty of the court to give the act a fair and reasonable construction for the accomplishment of its object. That object is the exclusion from interstate commerce of

food products so adulterated as to endanger health. And where, as here, it clearly appears that a poisonous substance wholly foreign to the food product has been added to it solely to mislead and deceive, the court is under no duty to endeavor to protect the offender against loss from destruction of the adulterated article by indulging in hair-splitting speculation as to whether the amount of poison used may possibly have been so nicely calculated as not to kill or be of any immediate serious injury * * *.

To the same effect is the charge in *United States v. Mayfield*, Northern District of Alabama (177 Fed., 765, 766).

Likewise, it has been held in the following unreported cases, printed in official publications of the Department of Agriculture, styled "Notices of Judgment," that the quality, not the quantity, of the prohibited substances must be considered: *United States v. Rosebrock & Co.*, Southern District of New York, Notice of Judgment 825; *United States v. Koca Nola Co.*, Northern District of Georgia, Notice of Judgment 202.

The Court of Appeals cites *Friend v. Matt* (68 J. P., 589) to support the rule it adopted. That case arose under sec. 3, 38-39 Vict., ch. 63, which provides "that no person shall mix, color, stain, or powder, or permit any other person to mix, color, stain, or powder any article of food or any ingredient or material so as to render the article injurious to health." Unlike our act, the English statute

prohibits manipulation of an article of food in such manner as to "render the article injurious to health." The contrast is between "so as to render" and "which may render."

The case of *French Silver Dragee Co. v. United States* (179 Fed., 824), also relied upon by the Court of Appeals, is discussed, *supra*, p. 13.

Having regard to the wording of the statute, its purpose, the evil to be remedied, and the intent of the Congress, it is submitted that the interpretation the Court of Appeals placed upon the fifth subdivision was erroneous and that the instructions of the trial Court as to its force and effect correct. There was evidence that bleaching added to this flour ingredients so poisonous as to be liable to render it injurious to health. The issue was fairly presented, and the verdict that the flour was adulterated ought not to be disturbed.

III.

THE COURT OF APPEALS ERRED IN REVIEWING THE WEIGHT OF EVIDENCE AS TO WHETHER THE FLOUR WAS ADULTERATED WITHIN SUBDIVISION 4 OF SECTION 7 OF THE FOOD AND DRUGS ACT RELATING TO FOOD.

Charges in libel.

Concealment of inferiority, as a result of the Alsop process, was charged under subdivision 4 of section 7. The specifications are, (1) the flour had been made to resemble flour aged and conditioned

by natural processes; (2) it had been given the appearance of a better grade than it really was; and (3) that it was of a grade inferior to patent flour and flour made from the first quality of hard wheat, bleaching having caused it to resemble patent flour and that made from first quality hard wheat. (R., 13-14.)

Bleaching conceals newness and imparts color of better grade.

The common test of the quality of flour, and according to some a sure and invariable one, is color. (R., 82, 513, 518, 550, 605, 1252-1253.) The whiter it is, the greater its demand and price. (R., 81, 514, 550, 985-986, 1126, 1255.)

Flour from old wheat, not bleached, is whiter than the product of new. (R., 56, 451, 488.) For a considerable time after milling, unbleached flour, made from either old or new wheat, increases in whiteness if stored under normal conditions. (R., 56, 90-95, 451, 467, 488, 542, 605, 991, 992, 1133.)

Natural aging produces chemical changes affecting the constituents of flour, especially gluten, making it more elastic, capable of absorbing more water and producing bread of superior color, flavor, and odor. (R., 54-56, 236, 488, 666, 991, 1133, 1257.)

That new flour is inferior to flour naturally aged and that both color and quality are improved by natural aging are undisputed facts.

The seized flour was freshly milled. (R., 138, 986.) Millers testified that bleaching conceals newness. (R., 426, 451, 488, 991-992, 1132-1133, 1179, 1256-1258, 1352, 1414, 1434.) Its object is to whiten flour and give it the appearance of that naturally aged. R., 1126, 1133, 1179, 1255-1258, 1352, 1414, 1434, 1439-1441.) Nitric acid, generated by contact of nitrogen peroxide with the water content, acts on the coloring matter and effects the bleaching. (R., 62-63, 154-157, 733-734, 803-809, 861-862.)

Some of claimant's witnesses testified that bleaching of all grades except the lowest ("Red Dog") makes them resemble higher and better ones. (R., 1134, 1144, 1179, 1188, 1236, 1254, 1328-1330, 1439.) Similar testimony was given for the Government. (R., 424-426, 511-514, 541-543, 654, 668.)

Voluminous testimony shows that bleaching injures the elasticity of gluten and other ingredients of flour, and bread made therefrom is less digestible and in other respects inferior to that made from unbleached flour. (R., 61, 72-76, 157-159, 168 et seq., 203 et seq., 227, 233-235, 322-323, 411, 427, 452-453, 468, 484-485, 545, 587-588, 654, 697, 699, 777, 778.) The proof also shows that the chemicals injected by bleaching impair or neutralize flour constituents, thereby destroying the capacity of flour to improve after milling. (R., 61, 605, 654-655, 698, 833-834.)

Inferior flour made to resemble patent.

Mill products of wheat are flour, bran, and shorts. Ordinarily, there are three grades of flour: "Straight," which includes all, "patent," which contains less than the whole, and "clear," which is the residue of the flour content. (R., 140.) "Patent" is the highest priced and best grade. (R., 81.) It is whiter than "straight" and therefore more valuable. Similarly, "straight" is whiter and more valuable than "clear." (R., 81, 424, 571, 1252.)

While no exact percentage was established, there was evidence that, according to usages among millers, buyers, and bakers, and in the market generally, it is not proper to call flour "patent" if it contains more than 80 to 85 per cent of the flour content of wheat. (R., 388, 424-425, 470, 488, 511, 541-542, 601-602, 664.) The flour seized contained 90 per cent. (R., 123.)

One method of testing for patent flour is to burn it and ascertain the ash content. (R., 152-153.) If this exceeds forty-four one-hundredths of 1 per cent, it is not "patent." (R., 153-154, 230.) This flour contained, according to one witness, fifty-three one-hundredths, and according to two others fifty-seven one-hundredths, of 1 per cent of ash. (R., 152, 232, 777.)

Another test is to wash out the gluten. This was applied to some of the flour and the gluten found less elastic than that of patent flours. (R., 777.)

The same witness ascertained that the flavor of this flour was not so good as that of unbleached "patents." (R., 777-778.)

Witnesses testified that it was impossible to make a patent flour out of the wheat from which this flour had been milled. (R., 469-470, 511, 654.)

Flour milled from inferior wheat made to appear milled from first-quality.

"Turkey hard" is a high grade of wheat grown, among other places, in Kansas and Nebraska. (R., 679.) "Yellow berry," an inferior grade, is sometimes referred to as deteriorated "turkey hard." (R., 679-681.) It is softer, incapable of making as strong a flour, and is cheaper. (R., 1261-1262.)

Hard wheat which contains as much as 10 per cent of yellow berry is not first quality. (R., 428, 510.) The flour seized was milled from wheat containing from 10 to 30 per cent, and claimant's head miller refused to testify that it did not contain as much as from 40 to 50 per cent, of yellow berry. (R., 123, 124.)

There was also testimony that the flour was inferior to that made from first quality hard wheat, because it contained yellow berry, which bleaching conceals. (R., 428, 679-680, 1134, 1178, 1261-1264, 1326.)

Instructions.

The jury was instructed (Appendix D) that if the evidence showed that, by means of bleaching, either (a) the inferiority of freshness or newness

was concealed, or (b) the flour was given the appearance of a better grade or quality than it really was, or (c) if inferior to patent or to that made from first quality of hard wheat, the flour was caused to have the appearance of patent or of flour made from first quality of hard wheat, they must find it adulterated. (R., 2021, 2024-2025.)

Claimant requested a peremptory instruction, numbered 3, which was refused. (R., 2007.)

Opinion of Court of Appeals.

After reciting some of the evidence, the Court (Appendix E) held the weight of the proof to be in favor of claimant, saying—

We are not persuaded that by the bleaching process flour is so colored as to conceal inferiority, or that by it flour is adulterated within the intent of subdivision 4 of section 7 of this act. (R. 2161.)

No power to review jury's findings.

It is the theory of the libel that subdivision 4 prohibits the changing of the color of flour so as to make poorer simulate better grades; to give flour produced from wheat just harvested the appearance of that made from the same wheat after aging and conditioning; to make newly milled flour simulate naturally aged; to raise the product of a poor mill, operated by a careless miller using the bleaching process, to the marketing level of the product of a good mill, operated by a skillful miller

not using such process, and thus to enable the former to sell an inferior article for a better one.

The statute declares adulterated all articles of food which are mixed, colored, coated, or stained in a manner whereby damage or inferiority is concealed. Adulteration exists when either damage or inferiority is concealed. The Government's case under the fourth subdivision rests upon the contention that bleaching conceals inferiority.

"Inferiority" is a term of comparison. The question is whether this flour was mixed, colored, coated, or stained in a manner to make it appear better than it really was. The statute contemplates that, to ascertain adulteration, the apparent quality of an article shall be compared with its real. This was the view of the trial Court.

There was abundant testimony showing that this flour was freshly milled, and by bleaching had been made to resemble flour naturally aged and conditioned. There was also evidence that new flour is inferior to that naturally aged in color, elasticity of gluten, and bread-making qualities; that bleaching gives the color of a better grade; that the flour was milled from wheat containing a considerable percentage of yellow berry, and therefore inferior to that made from first quality hard wheat; and that bleaching caused it to appear to be patent and milled from first quality hard wheat.

The issues under the fourth subdivision were fairly presented. There was ample proof on which

to base the verdict. The case was entertained below on a writ of error. Under these circumstances the Court of Appeals was without power to review the evidence. (*Behn v. Campbell*, 205 U. S., 403, 407; *Lancaster v. Collins*, 115 U. S., 222, 225; *Chicago & Northwestern Railway Co. v. Ohle*, 117 U. S., 123, 129.)

IV.

THE COURT OF APPEALS WAS CORRECT IN HOLDING THAT THERE WAS NO ERROR IN SUBMITTING TO THE JURY THE CHARGES OF ADULTERATION UNDER SUBDIVISION 1 OF SECTION 7 OF THE FOOD AND DRUGS ACT RELATING TO FOOD.

The adulteration charged under subdivision 1 of section 7 (R., 13) is fairly stated in the following instruction:

Upon this point the substance of the charges made by the Government is, (a) that the capacity of the flour to change and improve as it would have changed and improved if aged by natural processes has been destroyed by the treatment of the flour by the Alsop process, whereby substances known as nitrites or nitrite-reacting material have been mixed and packed with the flour, and (b), that by direct action of such process the elasticity of the gluten has been lessened and impaired so as to injuriously affect the bread-making qualities of the flour, and (c), that other constituents of the flour have been by such process injuriously affected so as to reduce, lower, and impair its bread-making quality. (R., 2019-2020.)

The Court instructed the jury that if the evidence sustained any of these charges they must find the flour adulterated (R., 2019-2020), and refused to grant a peremptory instruction, numbered 2, requested by claimant. (R., 2007.)

There was ample evidence to support each charge. (R., 61, 72, 76, 157-159, 169, et seq., 203 et seq., 227, 233-235, 322-323, 411, 427, 452-453, 468, 484-485, 545, 587-588, 605, 654-655, 697-699, 777, 778, 833-834.)

The Court of Appeals said:

The mixture referred to in the first subdivision must be held to include a chemical compound as well as a mechanical mixture. While this does not accord with the scientific definition of a mixture, yet in common acceptation mixtures and compounds are not discriminated. The evil intended to be remedied by this statute is not limited to a mechanical mixture, but is just as potent when the chemical union results from the two substances with the deleterious effect intended to be prevented by the act. Similarly, the word "colored" must be held to include any artificially produced change in the natural color of the substance "in a manner whereby damage or inferiority is concealed," even if the change is, as in this case, a removing of color. * * * It was for the jury to determine the fact, and the court did not err in refusing to peremptorily

instruct for the claimant so far as the claim of adulteration was based on the first subdivision before quoted. (R., 2160-2161.)

V.

FOOD AND DRUGS ACT CONSTITUTIONAL.

Claimant attacked the validity of the act on the ground (1) that it is not an exercise of the power to regulate interstate commerce, and (2) that, as construed by the trial Court, it authorizes the condemnation and forfeiture of wholesome substances.

No argument is needed to refute the first contention. *Hipolite Egg Co. v. United States* (220 U. S., 45).

The second is based on the postulate that the trial Court's construction of subdivision 5 of section 7 restricts commerce in harmless articles.

It is sufficient answer that the trial Court construed that subdivision as including foods containing added ingredients which *may* render them injurious to health, but did not bring under the prohibition articles containing added ingredients which merely render such articles harmless.

If the Act, as construed by the trial Court, would necessarily lead to the forfeiture of wholesome articles, it is not thereby rendered invalid. Congress is the arbiter as to what shall be excluded from interstate commerce, and neither the construction of the statute nor its constitutionality is affected by the fact that some wholesome products

might be forfeited. It frequently happens that legislation designed to eradicate an evil operates to prevent transactions otherwise lawful. (*Booth v. Illinois*, 184 U. S., 425; *Otis v. Parker*, 187 U. S., 606; *Powell v. Pennsylvania*, 127 U. S., 678.) Nor is the disregard of the specific question of wholesomeness an objection. (*Buttfield v. Stranahan*, 192 U. S., 470; *Powell v. Pennsylvania*, 127 U. S., 678.)

The constitutionality of the food and drugs act has been attacked on almost every conceivable ground, but without success. (*Hipolite Egg Co. v. United States*, 220 U. S., 45; *United States v. Johnson*, 221 U. S., 488; *Shawnee Milling Co. v. Temple*, 179 Fed., 517; *United States v. 74 Cases Grape Juice*, 181 Fed., 629; *United States v. 420 Sacks of Flour*, 180 Fed., 518; *United States v. Heinle Specialty Co.*, 175 Fed., 299; *United States v. 100 Cases of Tepee Apples*, 179 Fed., 985.)

Each issue as to adulteration was properly left to the jury, and its verdict is conclusive. The jury was instructed to find in favor of the Government if, as a matter of fact, the flour was shown to be adulterated in any of the ways or methods alleged in the libel. (R., 2027.) By force of section 10 of the act the Government was entitled to a decree of condemnation and forfeiture for adulteration, irrespective of the charges of misbranding.

The judgment of the Court of Appeals should be reversed, and the decree of the District Court, condemning the seized flour, affirmed.

J. C. McREYNOLDS,
Attorney General.

FRANCIS G. CAFFEY,
Solicitor Department of Agriculture.

December, 1913.

APPENDIX A.

EXTRACTS FROM THE FOOD AND DRUGS ACT (24 STAT., 768).

SEC. 7. That for the purposes of this act an article shall be deemed to be adulterated: * * *

In the case of confectionery:

If it contain terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound or narcotic drug.

In the case of food:

First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength. * * *

Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health. * * *

SEC. 8. * * * That for the purposes of this act an article shall also be deemed to be misbranded: * * *

In the case of food: * * *

Fourth. If the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular: *Provided*, That an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases: * * *

SEC. 10. That any article of food, drug, or liquor that is adulterated or misbranded within the meaning of this act,

and is being transported from one State, Territory, district, or insular possession to another for sale, or, having been transported, remains unloaded, unsold, or in original unbroken packages, * * * shall be liable to be proceeded against in any district court of the United States within the district where the same is found and seized for confiscation by a process of libel for condemnation. And if such article is condemned as being adulterated or misbranded, or of a poisonous or deleterious character, within the meaning of this act, the same shall be disposed of by destruction or sale, as the said court may direct.

APPENDIX B.

INSTRUCTIONS TO JURY ON ISSUES UNDER SUBDIVISION 5 OF SECTION 7 OF FOOD AND DRUGS ACT.

The Government charges adulteration of this flour in violation of the fifth subdivision relating to food of the section of the statute under which we are proceeding. The words of that provision are as follows: "If it (in this case meaning flour) contains any added poisonous or other added deleterious ingredient which may render such article (in this case meaning flour) injurious to health."

The substance of the charge found in the amended libel is that by the treatment of the flour by the Alsop process it has been caused to contain added poisonous and other added deleterious ingredients which may render the same injurious to health, to wit, nitrites, nitrite-reacting material, nitrogen peroxide gas, nitrous acid, nitric acid, and other poisonous and deleterious ingredients and substances.

It is the claim of the Government that if the flour contain any added poisonous or other added deleterious ingredient of a kind or *character* which may render (that is, which is capable of rendering) such article injurious to health it is adulterated, and should be condemned for confiscation.

On the other hand, it is the claim of the claimant that even though the flour contain added poisonous or other added deleterious ingredient it may not be condemned unless it shall further appear that such added substances are in such quantity that the flour shall be thereby rendered injurious to health.

This statute was enacted for the purpose of benefiting and protecting the consumer, which in this case means those who eat bread and cake and pastry and gravy and other products made from wheat flour. This was the purpose

that Congress had in mind when it enacted this statute. And in enforcing this statute in proper cases the fact that it will subject the millers to some expense, or the fact, if it be a fact, that it will enable the millers to market their flour more readily or at a better price, is entitled to no consideration and will receive no weight at your hands.

It will be noted that the act does not say "any added poison," but does say "any added poisonous ingredient." The word "poisonous" as an adjective conveys a descriptive meaning and is used in a qualitative sense, and not in a quantitative sense. That is, it refers to the kind of substances, and not to the quantity of the substance. This idea or meaning is further emphasized and rendered more certain by the qualifying clause "which *may* render such article injurious to health." It does not say "which *does* render such article injurious to health," but manifestly it was the purpose of Congress to include in this distinction all ingredients of a *poisonous character* to which, in their essential nature, might be ascribed the tendency to affect health injuriously.

This statute is essentially a remedial one, for the correction of known or supposed abuses with respect to the adulteration of food and other articles of human consumption. It is primarily a statute of prevention. Its meaning is made clear when its purpose is known and borne in mind.

It is not conceivable that the Congress of the United States, when it passed this act, intended that producers and vendors might continue to add poisonous and other injurious substances to food so long as the quantity added was not sufficient to produce observable poisonous or injurious effects upon the health of consumers, nor is it conceivable that Congress intended to require that the Government, before proceeding to condemnation of an article of food as adulterated must prove that it contains added poisonous or other added deleterious ingredient in such a quantity as *would* render such article injurious to health. It is known to everyone that there is no method of ascertaining or measuring the effect of the consumption of such substances in food upon the public health or upon the health of any particular individual.

It is clear that it was intended by Congress to prohibit the adding to food of any quantity of the prohibited substances.

The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the Government need not prove that this flour or food-stuffs made by the use of it would injure the health of any consumer. It is the *character*—not the *quantity*—of the added substance, if any, which is to determine this case.

The flour seized in this case is an article of food within the meaning of the act of Congress. And if the treatment of the same by the Alsop process caused it to contain any added poisonous or other added deleterious ingredient of a kind or character which may render the same injurious to health, then it is adulterated and must be condemned.

It is admitted that this flour was treated by the Alsop process for the purpose of bleaching or whitening, and the evidence establishes that nitrogen-peroxide gas was employed for that purpose, and further establishes that that gas, nitrous acid, nitric acid, and nitrites of the kind which may be produced by such treatment are poisonous and deleterious substances, and that these substances when taken in sufficient quantities will produce poisonous action or death.

It appears from the evidence in this case that the bleaching process imparts and adds to flour substances referred to in the testimony as nitrites or nitrite-reacting material, and such substances were imparted to the flour seized in this case by the bleaching process. It further appears from the evidence that such substances so imparted or added to to this flour are qualitatively both poisonous and deleterious; that is to say, that these substances are of a poisonous and deleterious character.

It is well known that wheat flour is not eaten raw. There is evidence in this case that tends to show that during the process of making bread nitrites or nitrite-reacting material

contained in the flour is lessened and may be eliminated under some circumstances, but it is also well known that wheat flour is used for the making of other articles of food—biscuits, dumplings, pastry, cake, crackers, gravy, and perhaps other articles of food, which may be consumed by all classes of persons, the young, the old, the sick, the well, the weak, the strong; and I charge you that it is right for you in reaching your verdict to take these facts into consideration together with all the other proven facts and circumstances in the case. (R., 2021-2024.)

APPENDIX C.

EXTRACT FROM OPINION OF COURT OF APPEALS ON ISSUES UNDER SUBDIVISION 5 OF SECTION 7 OF FOOD AND DRUGS ACT.

"Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health * * *."

The instruction complained of referred to the charge in the libel under the fifth subdivision just quoted. The trial judge decided that if the added substance was qualitatively poisonous although in fact added in such minute quantity as to be noninjurious to health that it still fell under the ban of the statute; and the distinction is sought to be drawn between substances admittedly poisonous when administered in considerable quantities but which serve some beneficial purpose when administered in small amounts, and those substances which it is claimed never can benefit and which in large doses must injure. This distinction is refined. To apply it must presuppose that science has exhausted the entire field of investigation as to the effect upon the human body of these various substances; that nothing remains to be learned. Otherwise the court would be required to solemnly adjudge to-day that a certain substance is qualitatively poisonous because it can never serve a useful purpose in the human system only to have this conclusion made absurd by some new discovery. There is no warrant in the statute for such a strained construction. The object of the law was evidently (1) to insure to the purchaser that the article purchased was what it purported to be, and (2) to safeguard the public health by prohibiting the inclusion of any foreign ingredient deleterious to health. (*Hall-Baker Grain Co. v. United States*, 198 Fed., 614.) The statute is to be read in the light of these objects, and the words "injurious to health" must

be given their natural meaning. It will be observed that this paragraph of the statute does not end with the words "added deleterious ingredient," but as a precaution against the idea embodied in the instruction complained of, it says "which may render such article injurious to health." Without these latter words it might, with more force, be argued that deleterious and beneficent ingredients are to be divided into two general classes independent of their particular effect in the actual quantities administered, but the possibility of injury to health due to the added ingredient and in the quantity in which it is added is plainly made an essential element of the prohibition. The investigation does not stop with the consideration of the poisonous nature of the added substance. It is added to the article of food and the statute only prohibits it if it may render such article—the article of food—injurious to health.

In *French Silver Dragee Co. v. United States* (179 Fed., 824), this question was considered by the Court of Appeals of the Second Circuit. In that case adulteration was charged in confectionery by the addition of silver. The article in question was made of sugar and thinly coated with pure silver. The statute declares that confectionery shall be deemed to be adulterated "if it contain terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt, or spirituous liquor or compound or narcotic drug." The element of injury to health is not expressed as a qualification of mineral substance. Silver is admittedly a mineral substance and the act of the defendant was within the letter of the prohibition, but the court construing the statute in the light of the evils it was intended to remedy, the objects sought to be accomplished, held that there was implied in this clause relating to confectionery the very limitation expressed in the paragraph relating to food, and as there was no proof that the coating of silver might render the article injurious to health, it did not fall within the ban of the statute. It was there said: "Stated in another way we think that the history of the act, the objects to be accomplished by it and the language of all its provisions, require that it should be so interpreted that in the case of confectionery, as in the

case of foods and drugs, the Government should establish with respect to products not specifically named that they either deceive or are calculated to deceive the public or are detrimental to health."

In *Friend v. Matt* (68 J. P., 589) there was under consideration Sec. 3 of 38-39 Victoria, Chap. 63, which reads: "No person shall mix, color, stain, or powder or alter, or permit another person to mix, color, stain, or powder any article of food or any ingredient or material so as to render the article injurious to health." In that case the respondent was charged with selling preserved peas, the color of which had been retained by the addition of sulphate of copper. It was contended that as sulphate of copper in substantial quantity was injurious to health, the peas so treated with it were within the statute even if the treated peas were not injurious to health. This view prevailed in the trial court, but the judgment was reversed on appeal, Lord Alverstone, chief justice, saying: "I have no doubt that in order to convict under Sec. 3, the article of food must be shown to be injurious to health by the addition of some ingredient."

The instruction complained of eliminated a consideration of any possible injurious effect from the use of the flour as an article of food, and was erroneous. We are not unmindful of the contention that the evidence conclusively shows that flour subjected to the bleaching process is injurious to health in some degree, even if its injurious effect is so slight as to be incapable of observation, and that, hence, the instruction we have found to be error was error without prejudice. This contention is founded upon expert testimony as to the result from the taking of nitrites into the human system. It is said that nitrites taken into the human body act upon the coloring matter of the red corpuscles of the blood so as to change the hemoglobin of the blood into methemoglobin. In the language of one of the chief chemical experts of the Government this effect is thus described:

"In the blood stream there are red corpuscles, invisible to the naked eye, which contain a red coloring substance known as hemoglobin when not combined with oxygen and when combined with oxygen forming a dissociable compound, oxyhemoglobin. In respiration, the hemoglobin contained

in the red corpuscles of the venous blood is brought into the lungs, where it, having an affinity for the oxygen, which is one of the gaseous constituents of the air, combines with the oxygen to form oxyhemoglobin. This oxyhemoglobin contained in the red blood corpuscles is then conveyed through the arterial system to the various parts of the body, and of the terminals of the arterial system, passing through a mass of tissue, it gives up its oxygen, to oxidize the tissues, or materials that may be in solution there, to form carbon dioxide, and to form water, and this oxyhemoglobin is thereby reduced to the condition of hemoglobin, which is returned by the venous system to the lungs to be again oxygenated. That is where the hemoglobin will again combine with oxygen to form oxyhemoglobin, and a given quantity of hemoglobin may serve to carry a given quantity of oxygen to the system. Now, however, if any of this hemoglobin is converted into methemoglobin, which is a compound of oxygen with homoglobin, in which the oxygen is more firmly combined than in the case of oxyhemoglobin, although the quantity of oxygen is the same, the oxygen is so firmly attached—combined with the hemoglobin—that the vital processes are not sufficiently strong to separate the oxygen from the hemoglobin, nor to use the oxygen to oxidize the tissue and tissue material, to sustain life, and, consequently, it passes through the circulation to the arterial system and the venous system, and continues this cycle until finally it is destroyed by the liver. Therefore a certain quantity of the hemoglobin is rendered inefficient. It no longer functionates as a carrier of oxygen to the system, serves, or acts, as a foreign body in the blood circulation, and, therefore, must be removed. As I have said before, an extra strain is placed upon the liver in order to remove it, and an extra strain is placed upon the red blood marrow in adults to regenerate the corpuscles and to replace the corpuscles of the hemoglobin that have been rendered inactive by the action of nitrite and the formation of methemoglobin."

It is also said that the continued presence of nitrites in the system does not develop any tolerance on the part of the body or means of neutralizing its normal action. On the other hand, it was proved that no injurious effect had

ever been observed from the use of bleached flour although such flour had been largely used. That nitrites in some or greater amounts are frequently present in potable water, bacon, ham, fruits, and certain vegetables, and even in the saliva of both adults and children, and no evil result has been detected. That urea usually present in saliva is, when taken into the stomach, a neutralizer of nitrites, and is a method by which nature averts harm from minute quantities of nitrites so constantly taken into the system. In this conflict of evidence it was essentially a matter for the jury to find the fact under proper instructions. Expert testimony is but evidence. In case of dispute the controversy can not be settled by the judicial knowledge of the court. (*U. S. v. McClue*, 1 Curtis, C. C., 1-9; *U. S. v. Molloy*, 31 Fed., 19.) It can not be held that the evidence was so conclusive in favor of the Government as to warrant the court in withdrawing this issue from the jury. (R., 2157-2160.)

APPENDIX D.

INSTRUCTIONS TO JURY ON ISSUES UNDER SUBDIVISION 4 OF SECTION 7 OF FOOD AND DRUGS ACT.

It appears from the evidence in this case that wheat flour when freshly made is inferior to what that same flour will become by the lapse of time and processes of natural aging and conditioning; that the inferiorities of freshness or newness manifest themselves in inferiority of color, of elasticity of the gluten, and of the quality of other ingredients which affect its value for bread-making purposes; and it further appears that by the lapse of time and aging and conditioning by natural processes wheat flour will improve for a period of time, stated to be from two to four months, or thereabouts; and that such improvement increases the value of the flour and makes it lighter in color; and it further appears that this bleaching process makes the freshly milled wheat flour appear to be like and to simulate the appearance which that same flour will assume after natural aging and conditioning. And it further appears that this flour when seized was not naturally aged or conditioned, but was newly milled flour.

On this branch of this particular issue it is for you to say, in the light of all these facts and all the evidence, whether or not the inferiority of freshness or newness was concealed by the bleaching process.

On the second branch of this particular issue I charge you that, if treatment by the Alsop process has given to this flour the appearance of a better grade or quality of flour than it really is, you should find for the Government that it is adulterated. And upon the third branch of this particular issue, I charge you that if you should find from the evidence that this flour is of a grade of flour inferior to patent flour, or is a flour inferior to flour made from the first quality hard wheat, and that bleaching by the Alsop

process has caused it to have the appearance either of a patent flour—as that term will be explained to you in this charge—or the appearance of a flour made from the first quality of hard wheat, then you must find for the Government that this flour is adulterated. * * *

There is much dispute in the evidence as to the meaning of the phrase “patent flour.” Some of the witnesses for the Government testified in substance that the phrase had a well-defined meaning among millers, bakers, and in the flour market generally, and that it means that the flour so-called patent flour is less than the total flour content of the wheat, and includes what is known in the milling process as the purified middlings, but it is not claimed by the Government nor any of the witnesses that patent flour is or contains any definite or specific percentage of the total flour content of the wheat. On the other hand, some of the witnesses for the claimant testified that the phrase “patent flour” has no definite or recognized meaning among millers, bakers, flour dealers, or elsewhere, and that flours containing the total flour content of the wheat, excepting low grade, sometimes called “red dog,” are labeled and sold in the market as “patent flour.”

It is the law that if the phrase “patent flour” has a well-known and well-understood meaning generally among millers, flour purchasers, bakers, and in the flour markets of the country, then such meaning as so understood is to be attributed to that phrase. In other words, patent flour is the kind of flour that it is generally understood to be by millers, bakers, flour purchasers, and in the markets generally. You are therefore to determine, first, Has the phrase “patent flour” any well-defined and well-known meaning? And, second, Is the flour seized that kind of flour, namely, “patent flour.” (R., 2021, 2024-2025.)

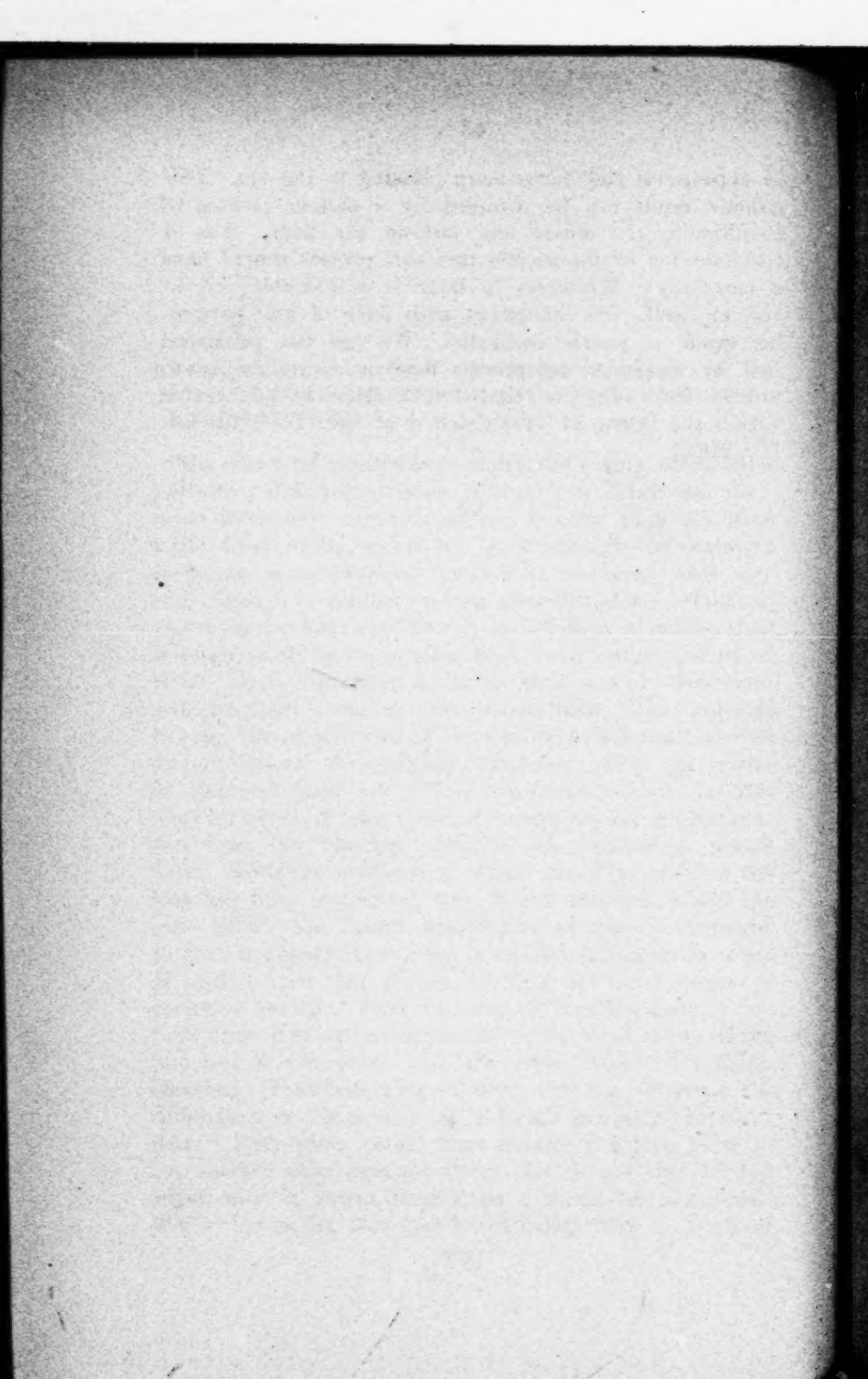
APPENDIX E.

EXTRACT FROM OPINION OF COURT OF APPEALS ON ISSUES UNDER SUBDIVISION 4 OF SECTION 7 OF FOOD AND DRUGS ACT.

The claim of adulteration under the fourth subdivision presents a different question. There is evidence that flour made from new wheat is darker in color than the flour made from wheat which has gone through an incipient fermentation or sweating process in the stack; and, second, through a similar process after thrashing. This involves time. Also, that freshly milled flour is darker than it subsequently becomes when kept for a certain period of time. That clear flour is darker than straight flour and straight flour is darker than patent flour. That color is to some extent an index of the quality of the flour, and as such influences the ordinary purchaser. That all grades of bleached flour are whiter than unbleached. In this way the index of color becomes unreliable, and a purchaser may take the bleached straight for unbleached patent flour. With the evidence on which the inferiority of the bleached flour is claimed, this, it is contended, brings the case within the fourth subdivision of Sec. 7. Opposed to this, it appears that color is at best an uncertain index of quality and that dealers in flour use other means to ascertain quality. That the color of bleached flour is distinct from that of unbleached flour; the dead white of the bleached is contrasted with the cream white of the unbleached. That bleaching of flour does not obliterate the differences in appearance of different grades of bleached flour. That while patent flour obtains a higher price in the market than straight flour, this is not due to any superiority in patent flour from a nutritious standpoint, but is due to the fact that bread baked from it is whiter

in appearance and hence more pleasing to the eye. This esthetic result can be obtained by a certain process of conditioning the wheat and milling the flour. Was it the intention of the statute that this process should have a monopoly? Whiteness in flour is a desirable end in and of itself. Its connection with flour of any particular grade is purely incidental. We are not persuaded that by the bleaching process flour is so colored as to conceal inferiority or that by it flour is adulterated within the intent of subdivision 4 of Sec. 7 of this act. (R., 2161.)





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U. S. DISTRICT COURT, S. D.
FILED
DEC 30 1913
JAMES J. MAHER
CLERK

IN THE
SUPREME COURT OF THE UNITED STATES.

AUTUMN TERM, 1913.

THE UNITED STATES OF AMERICA,
Petitioner,
vs.
THE LEXINGTON MILL AND ELEVATOR CO.,
Respondent.

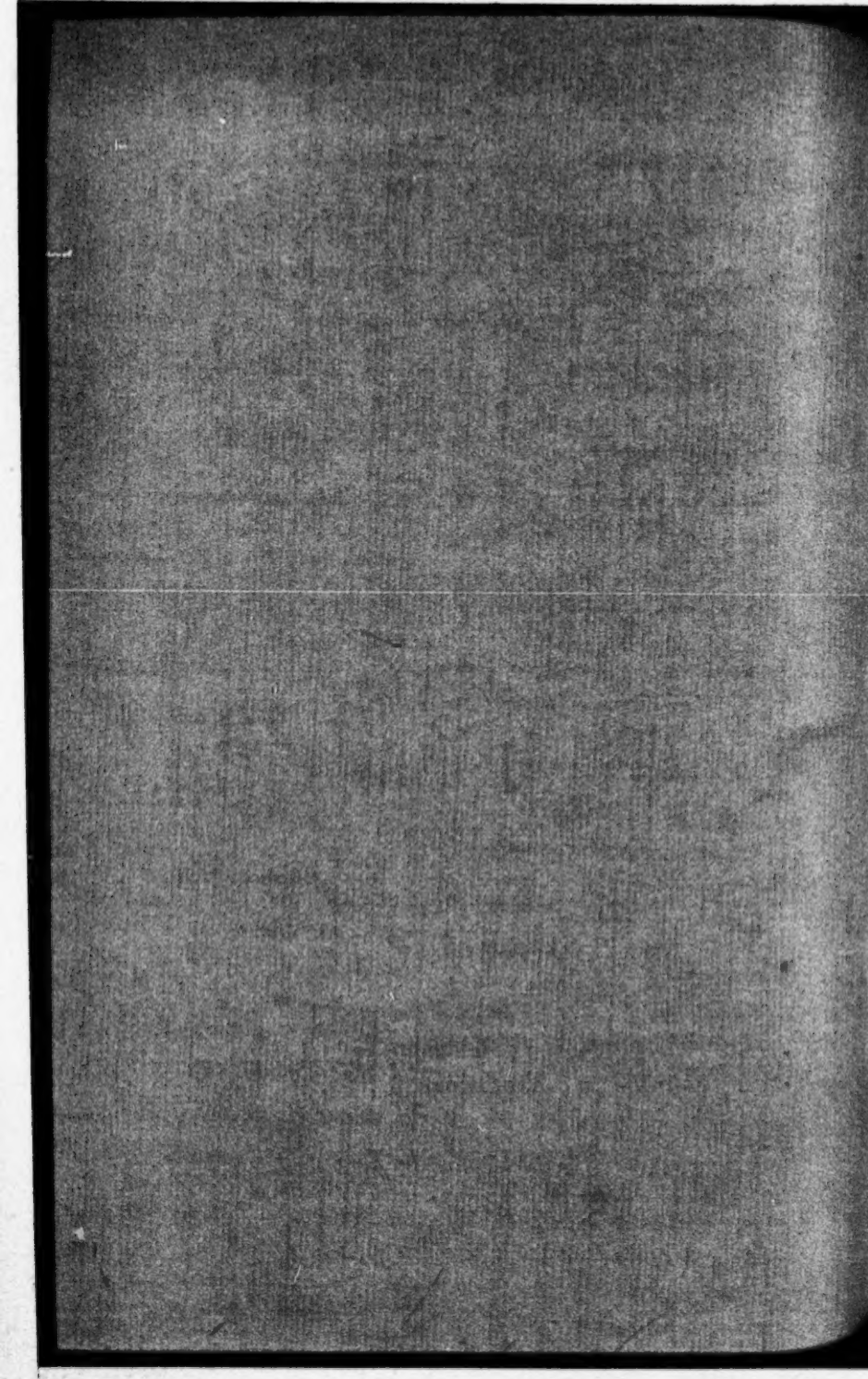
} No. 548.

CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF
APPEALS FOR THE EIGHTH CIRCUIT.

BRIEF ON BEHALF OF THE RESPONDENT.

EDWARD P. SMITH,
EDWARD L. SCARRITT,
BRUCE S. ELLIOTT,
Attorneys for Respondent.

C. J. SMYTH,
W. C. SCARRITT,
Of Counsel.



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**IN THE
SUPREME COURT OF THE UNITED STATES.**

OCTOBER TERM, 1913.

THE UNITED STATES OF AMERICA,	}	No. 548.
Petitioner,		
vs.		
THE LEXINGTON MILL AND ELEVA- TOR CO.,		
	Respondent.	

**CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF
APPEALS FOR THE EIGHTH CIRCUIT.**

BRIEF ON BEHALF OF THE RESPONDENT.

STATEMENT.

This is a proceeding by the United States of America to forfeit six hundred and twenty-five sacks of flour manufactured and sold by the Lexington Mill & Elevator Company, claimant. Trial was had to a jury and verdict rendered in favor of the United States. From the judgment entered thereon the claimant brought error and appeal to the United States Circuit Court of

Appeals for the Eighth Circuit. The appeal was dismissed. On review of the case under the writ of error the judgment below was reversed, and the case remanded for a new trial. The Government petitioned for a writ of *certiorari*, in which the claimant and respondent filed a joinder in petition, which petition was granted, and the case is now before this Court for review under the writ of *certiorari*.

The respondent herein, claimant and plaintiff in error in the court below, and hereinafter termed respondent, is a corporation organized under the laws of the State of Nebraska, and operates a flour mill at Lexington, Dawson County, Nebraska.

In February, 1910, it sold to B. O. Terry, a retail grocer at Castle, Missouri, a carload of flour. On April 1, 1910, it shipped from Lexington, Nebraska, to B. O. Terry, at Castle, Missouri, six hundred and twenty-five sacks of flour manufactured by it. After its arrival at Castle, it was unloaded, placed in a store-room of Mr. Terry, and a portion thereof (twenty-eight sacks) sold by him to his customers. On April 9, 1910, a libel was filed by the United States in the United States District Court at Kansas City, under the provisions of Section 10 of the Food and Drugs Act, 34 Stat., 768, and a warrant of seizure issued, by virtue of which the flour was seized under the claim that it was adulterated and misbranded in violation of the provisions of that Act. This libel, as afterwards amended, charged that the flour in question had been treated by a process for the bleaching of flour known as the "Alsop Process," and which process, it was claimed, consists of the generation by means of electricity of nitrogen peroxide gas, mixing this gas with atmospheric air, and bringing the mixture thus formed

into contact with the flour. It was claimed that the flour thus treated had become a subject of interstate commerce by being shipped from the State of Nebraska to the State of Missouri, and that the same was liable to seizure, condemnation and destruction under and by virtue of the provisions of the Act of Congress aforesaid, approved June 30th, 1906, entitled

“An Act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes.”

THE PROVISIONS OF THE LAW INVOLVED.

The pertinent provisions of the Act as relates to adulteration are as follows:

“Sec. 7. That for the purposes of this Act an article shall be deemed to be adulterated: * * *

In the case of food:

First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength. * * *

Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health.”

THE LIBEL.

The libel sought the condemnation and destruction of the flour in controversy on two separate and distinct grounds: First, that the flour was adulterated within the meaning of the Food and Drug Act above referred

to; and second, that it was misbranded within the meaning of the same act.

In specifying wherein said flour was adulterated within the meaning of said act, it was charged:

(a) That a substance known as nitrites or nitrite reacting material had been mixed and packed with said flour so as to reduce and lower and injuriously affect its quality and strength.

(b) That said flour had been mixed, colored and stained in a manner whereby damage and inferiority was concealed.

(c) That said flour had been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, nitrogen peroxide, nitrous acid, nitric acid, and other poisonous and deleterious substances which may render said flour injurious to health.

THE ANSWER.

To this amended libel an answer was filed by the Lexington Mill & Elevator Company which tendered issues of law and issues of fact. The issues of law tendered challenged the constitutionality of the law under which the seizure had been made, and challenged the right and authority of the Court and its officers to seize the flour in question.

The issue of fact tendered by the answer, so far as it dealt with the adulteration of the flour, was in part as follows (Rec., p. 16):

“Further answering said amended libel this defendant admits that said flour has been treated by the Alsop Process, and in this connection alleges that the process by which it has thus been

treated consists of generating in rapid succession a flaming electric discharge in a current of air in proximity to such electric discharge, and in conducting the air as modified by such discharge into the presence of the flour as it is being continuously passed through a revolving reel or agitator, but this defendant denies that the flour thus treated is in any way adulterated or that by said process any poisonous or other deleterious ingredient is in any manner added thereto, or imparted thereto, or that the flour thus treated is in any way injurious to health or contains any added deleterious ingredient or that the same is in any manner adulterated or that by such process any damage or inferiority in said flour is in any manner concealed or that the quality or strength of said flour is in any manner affected, reduced or lowered."

The issue of fact tendered by the answer, so far as it dealt with the misbranding of the flour, need not be recited for the reason that the Court of Appeals ruled there was no evidence to support that charge and the Government has assigned no error here as to that ruling.

On the issues thus joined a very large volume of testimony was taken, and at the close of the testimony instructions were requested on the part of the plaintiff in error, each and all of which were refused, and instructions were given by the Court on its own motion in which the trial court's views of the law applicable to the case were set forth.

Under the Court's instructions a verdict against the defendant on both counts was returned by the jury.

The defendant, Lexington Mill & Elevator Company, then prosecuted error to the Circuit Court of Appeals,

and in that Court it was held there was no competent evidence in the record to sustain the charge of **misbranding**, and that the trial court should have sustained the motion made by the defendant to withdraw that issue from the jury and to direct a verdict in its favor.

The Circuit Court of Appeals also held that the trial court erred in its interpretation of the law relative to the issue of **adulteration**, and remanded the case for a new trial. In presenting the case to this Court, in its application for a writ of *certiorari*, complaint is made by the Government only of the construction placed by the Circuit Court of Appeals upon the law, so far as the same applies to the issue of adulteration of the flour in question.

INTRODUCTION TO ARGUMENT.

(a) Description of Alsop Process.

The amended libel filed by the Government (Rec., p. 12) alleges that the flour seized was treated by a process for the bleaching of flour known as the "Alsop Process," and states that said process consists of the generation, by means of electricity of nitrogen peroxide gas, which is mixed with air and the mixture brought into contact with the flour. A somewhat fuller description of this process may be found useful. An electrical machine is provided, having two electrodes or contact points which are alternately brought into and out of contact. As the electrodes are separated about an inch and a half or two inches, what is known in the art as a flaming arc is produced, and at the instant of the production of this arc atmospheric air is caused to circulate by and in proximity to the

same, which results in a modification of the air. As stated in the Alsop Patent No. 759,651 (Rec., p. 1965), in column 1 of said patent, line 30, "It has been determined by chemical analysis, * * * that air treated in the manner * * * described contains nitrogen peroxide (NO^2 , or N^2O^4) and traces of ozone (O^3) and is in a state of ionization." In addition it may be stated that such amount of peroxide of nitrogen gas as is produced is enormously diluted with air. According to the testimony of Professor George A. Hulett, one of the Government experts, who tested the gas of an Alsop machine while it was in actual operation (Rec., p. 729), this dilution was in the proportion of 300 parts of nitrogen peroxide to a million parts of air, or in other words, three parts of peroxide of nitrogen in 10,000 parts of air. Professor Hulett estimated that the concentration of the gas that was used in bleaching seized flour was about 1000 parts per million, or in other words, one part of peroxide of nitrogen to 1000 parts of air. Professor Acree, another Government witness (Rec., p. 802), estimated the concentration at 1100 volumes of nitrogen peroxide to one million parts of air, or eleven parts of peroxide of nitrogen to 10,000 parts of air. Pure, that is undiluted, peroxide of nitrogen is dark brown in color, and much heavier than air; so heavy, in fact, that it may be poured from one receptacle into another. The gas from the Alsop machine as it goes to the agitator is invisible. This gaseous medium is carried by a slight air draft to a drum or holder, and thence it passes into an agitator, where it is brought into contact with the flour while it is being agitated and passed through the agitator by a series of revolving paddles. The estimate of

the length of time that the flour is in contact with the modified air varies from twenty seconds to half a minute. The testimony of both sides is in agreement in the statement that the bleaching is effected practically instantaneously. The flour is constantly passing through the agitator, whence, after a brief period of contact with the modified air, it passes through a suitable spout to a bin and thence, in turn, to the packer. The whole process is continuous.

Thus, to recapitulate, the whole Alsop Process consists in passing air through a flaming arc of electricity, whereby a minute amount of peroxide of nitrogen, and perhaps other gases, such as ozone, are formed, and then conducting the air thus modified into the presence of the flour where it acts to instantly lighten its color, and to age and condition the flour.

(b) The Effect on the Flour of Treating it by the Alsop Process.

It may be stated that the undisputed testimony shows that the flour is made whiter. The testimony in the case tends to show that when new flour, or flour from new wheat, is thus treated it has imparted to it the characteristics of flour which has been allowed to age and condition for two or three months, such natural aging and conditioning also resulting in whitening the flour, and in drying it out to an appreciable extent. The testimony also shows that when such new flour is treated by the Alsop Process it is rendered at once suitable for baking, being to that extent greatly improved in quality, whereas, as is well known, and as is fully developed by the testimony of both sides, new flour or flour from new wheat is not ordinarily well adapted for baking purposes, but must be allowed to

age and condition for a certain length of time to place it in the best condition for this purpose.

As a further result of this treatment of flour by the Alsop Process, and which really constitutes the heart of the present litigation, it is claimed by the Government that a minute amount of a substance designated as "nitrite reacting material" appears in the flour, the flour in controversy showing as claimed by the Government 1.8 parts per million of such nitrite reacting material calculated as nitrogen. It is not definitely known what this alleged substance really is, no one has ever collected it from the flour, and even according to the Government's analysis, it is present in such an exceedingly minute amount that the only way it can be discovered at all is by the use of a sensitive test known as the "Griess-Ilosvay Test", which is a test for nitrous acid, and which is so exceedingly delicate that it is stated it will disclose the presence of nitrous acid if present in the proportion of one part to a billion parts of water (testimony of witness, Mitchell, Rec., p. 255).

It is because of the use of this process and because the flour in question was subjected to the current of electrically modified air for about fifteen seconds that the claim is made that the flour in question was adulterated and that its condemnation and destruction was justified.

(c) The Status of the Process.

The Alsop Process was first installed in about the year 1903, and within a few years its use was well-nigh universal. It has been installed in nearly all of the commercial mills of the United States, including the mills of the great milling center at Minneapolis. It is likewise extensively used abroad, especially in

England, Germany and France. In England and France the process has been the subject of litigation. The question of adulteration, that is, as to whether or not it harmed or in any way adulterated the flour, was brought directly in issue in both countries, and in both the absolute legitimacy and harmlessness of the process were vindicated. Patents covering the process were infringed extensively, giving rise to a great deal of the litigation referred to; and in the litigations in this and the other countries named the defendants attacked the patents and the process on every conceivable ground, including that of adulteration or of injury to the flour by the use of the process. As the records of these cases disclose, the services of the most eminent scientists of the world were enlisted on one side or the other. We question if any commercial process has ever been subjected to such widespread and searching investigation as this process of bleaching flour. Not only has the process been vindicated in every instance, but the French Court of Appeals of Douai, in its decision of March 5th, 1908, in the case of **La Compagnie Francaise de Sterilization de Farines v. La Cie. du Procédé Alsop and Ch. Poisson**, held that bleaching constitutes a notable industrial progress.

(d) **The Substance in Controversy.**

It is hardly believable, but yet it is true, that this whole controversy, extending over several years and involving a vast outlay of time and money, centers about a substance whose character is not definitely known, and which is present in the flour in such a minute amount that it is absolutely impossible to recover it or to isolate it, and the use of the most delicate test known to science, the Griess-Ilosvay test, is necessary to detect its presence.

BRIEF AND ARGUMENT.

I.

CONGRESS POSSESSES NO POLICE POWER, AND THE ACT OF JUNE 30TH, 1906, IF SUSTAINED AT ALL, MUST BE SUSTAINED ON THE GROUND THAT IT IS A REGULATION OF COMMERCE BETWEEN THE STATES.

(a) If the Act of June, 1906, known as the Food and Drugs Act, under which these proceedings were commenced and are being prosecuted, is primarily and in fact an Act to regulate commerce between the states, then it may be admitted to be within the powers possessed exclusively by Congress. If, however, the Act is primarily and in fact the exercise of police powers as that term has been defined by the Supreme Court of the United States, and if it but incidentally affects commerce between the states, then it is an attempt to exercise powers not possessed by Congress, and is void.

Let us state this proposition in another form, in order to make our position clear. Congress possesses plenary and exclusive power to regulate commerce between the states. The several states possess plenary and exclusive power to enact police regulations for the protection of the public health, public safety, and public morals. If in the exercise of its powers to regulate commerce between the states an Act is passed by Congress which has for its primary object the regulation of commerce between the states, that Act cannot be held void simply because in its operation it does incidentally or necessarily promote public health, public safety, and public morals.

On the other hand, an Act passed by the Legislature of a state which has for its primary object the protection of the public health, public safety, or morals of the citizens of the State, cannot be held void merely because in its operation it may incidentally affect interstate commerce. But if the state were to pass an Act, the only purpose of which would be to regulate commerce between the states, or if Congress should pass an Act, the only effect and purpose of which is to protect public health, then we submit the state in the one instance and Congress in the other has exceeded its powers.

That was the rule announced by this Court in the case of **Crutcher v. Kentucky**, 141 U. S. 47, where Mr. Justice Bradley, speaking for the Court, said:

“It is also within the undoubted province of the State Legislature to make regulations with regard to speed of railroad trains in the neighborhood of cities and towns with regard to precautions to be taken in the approach of said trains to bridges, tunnels, deep cuts, and sharp curves, and generally with regard to all operations in which the lives and health of people may be endangered, even though said regulations affect to some extent the operation of interstate commerce.”

These regulations by the several states are purely police regulations in their character, and while they incidentally affect interstate commerce, have universally been sustained because the primary object of the act is the preservation of the public health and public safety.

It will be conceded that if the primary object and the main purpose to be accomplished by the act was the regulation of interstate commerce, then the act of

the state would be void, although it did incidentally promote public safety and public health.

The counter proposition must be equally true that if the Act of Congress has for its primary object the regulation of commerce between the states, then it is not void merely because incidentally it does promote public health and public safety. But if the object in view and the main purpose to be served is the protection of public health and public safety, then we insist the act is beyond the powers of Congress, even though incidentally commerce between the states is drawn in question.

The term "police power", like the term "due process of law", is difficult of concise definition, and we cannot do better than to use the language of Mr. Justice Brown, in the case of *Lawton v. Steele*, 152 U. S. 133 (14 S. C. R. 499), where he said:

"The extent and limits of what is known as police power have been a fruitful subject of discussion in the Appellate Courts of nearly every state in the Union. It is uniformly conceded to include everything essential to public safety, health, and morals, and to justify the destruction or abatement by summary proceedings of whatever may be regarded as a public nuisance."

Accepting this as a correct definition of the term "police power", we believe the decisions of this Court from the time of Chief Justice Marshall down to the present time justify us in claiming that Congress possesses no police power within the states, and that if the act in question is an attempted exercise of that power on the part of Congress, then it is unconstitutional and void.

In the License Cases (5 How. 504) decided in 1847, in the opinion by Mr. Justice Catron it was said:

“And here is the limit between the sovereign power of the state and the federal power. That is to say, that which does not belong to commerce is within the jurisdiction of the police power of the state, and that which does belong to commerce is within the jurisdiction of the United States. And to this must all the general views come, as I suppose, that were suggested in the reasoning of this Court in the case of **Gibbon v. Ogden**, 22 U. S. 1.”

This clearly marks out the line of distinction. If it pertains to commerce between the states, it must be regulated by Congress. If it does not belong to commerce, but is an exercise of police power, then it belongs to the states.

This rule was further announced in the case of **Hannibal & St. Joe R. R. Co. v. Hewson**, 95 U. S. 465, where Mr. Justice Strong said:

“We admit that the deposit in Congress of the power to regulate foreign commerce and commerce among the states was not a surrender of that which may properly be denominated police power. What that power is it is difficult to determine with sharp precision. It is generally said to extend to making regulations promotive of domestic order, morals, health and safety.”

Under the Constitution of the United States, powers not delegated to Congress are reserved to the states or to the people thereof, and if it be true, as stated in this opinion, that the deposit in Congress of the power to regulate commerce among the states was not a surrender of the police powers of the several states, then it

must be clear that if the act in question is in truth and in fact an exercise of police power, then such power could be exercised not by Congress, but only by the several states.

As applied to the case at bar, the State of Missouri would have the right in the exercise of the police powers which it possesses to say what should or should not be sold as food products, provided always that regulation is reasonable and not arbitrary. But the Congress of the United States would not have the power to make this same regulation, if we are correct in our contention that it is the exercise of a police power.

In the License Cases above referred to, it was further said:

“The police power, which is exclusively in the states, is alone competent to the correction of these great evils, and all measures of restraint or prohibition necessary to effect the purposes are within the scope of that authority.”

In **Wilkinson v. Rahrer**, 140 U. S. 545 (11 S. C. R. 865), the exclusive right and power of Congress to regulate commerce between the states and the exclusive right and power of the states to enact proper police regulations were very clearly pointed out in the opinion by Chief Justice Fuller. In the course of that opinion he said:

“It is absurd to affirm that because the rights of life, liberty and property (which include all civil rights that men have) are by the amendment sought to be protected against invasion on the part of the state without due process of law, Congress may, therefore, provide due process of law for their vindication in every case; and that because the denial by a state to any person of the equal protection of the laws is prohibited by the

amendment, therefore Congress may adopt laws for their equal protection. In short, it is not to be doubted that the power to make the ordinary regulations of police remains with the individual states and cannot be assumed by the national government, and that in this respect it is not interfered with by the 14th amendment."

Note the language:

"It is not to be doubted that the power to make the ordinary regulations of police remains with the individual states and cannot be assumed by the national government, and that in this respect it is not interfered with by the 14th amendment."

This rule was applied and followed by this court in the cases of

Mugler v. Kansas, 123 U. S. 623;

Plumley v. Commonwealth of Massachusetts, 155 U. S. 461;

New Orleans Gas Light Co. v. Louisiana Light & Heat Producing Co., 115 U. S. 650;

United States v. Knight, 156 U. S. 1;

Interstate Commerce Commission v. Brimson, 154 U. S. 447;

Employers Liability Case, 207 U. S. 463.

In the case of the *United States v. Knight*, 156 U. S. 1, *supra*, Chief Justice Fuller, speaking for the Court, said:

"It cannot be denied that the power of a state to protect the lives, health and property of its citizens and to preserve good order and the public morals, the power to govern men and things within the limits of its dominion, is a power originally and always belonging to the states, not surrendered by them to the general government, nor directly restrained by the Constitution of the United States, and essentially exclusive." (Italics ours.)

II.

THE ACT OF JUNE 30, 1906, IS TO BE REGARDED AS AN ACT TO REGULATE COMMERCE, AND THE COURT ERRED IN CHARGING THE JURY THAT THE GOVERNMENT NEED NOT PROVE THAT THE FLOUR IN QUESTION, OR FOODSTUFFS MADE BY THE USE OF IT, WOULD INJURE THE HEALTH OF THE CONSUMER; THAT IT IS THE CHARACTER—NOT THE QUANTITY—OF THE ADDED SUBSTANCE WHICH IS TO DETERMINE THIS CASE.

The section of the Act involved under this branch of the case is as follows:

“Sec. 7. That for the purposes of this Act an article shall be deemed to be adulterated:

In the case of food:

Fifth: If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health.”

The amended libel under which this flour was condemned contains the following:

“By the treatment as aforesaid the said flour has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, nitrogen peroxide, nitrous acid, nitric acid, and other poisonous and deleterious substances which may render said flour injurious to health” (Rec., p. 14).

The answer of the respondent denied this statement of the libel (Rec., p. 17, Par. 10).

The instructions requested by the respondent as to this branch of the case, and which were refused, are as follows (p. 2007):

“4. That there is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question contains an added poisonous or other added deleterious ingredient which may render it injurious to health.

“11. That the burden is upon the prosecution to prove the truth of the charge in the libel, that by the treatment of the flour in question by the said Alsop Process it has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, which may render said flour injurious to health.

“And in this connection you are further instructed that it is incumbent upon the Government to prove that any such added poisonous or other added deleterious ingredients, if any, contained in said flour are of such a character and contained in the flour seized in such quantities, conditions and amounts as may render said flour injurious to health, and unless you find that all of such facts are so proven, you cannot find against the claimant or condemn the flour in question under the charge in the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant.

“16. The law does not prohibit the adding of nitrites or nitrite reacting material to flour, and a jury cannot find for the Government or against the claimant, even if it be shown that nitrites or nitrite reacting material was added to the flour in question, unless they believe from a preponderance of the evidence that such addition, if any, rendered said flour injurious to the health of those who

might consume the bread or other foods made from said flour.”

In submitting this question to the jury the Court instructed the jury as follows (Rec., p. 2023):

“It is clear that it was intended by Congress to prohibit the adding to the food of any quantity of the prohibited substance. The fact that poisonous substances are to be found in the body of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food such as flour, because the statute condemns the adding of poisonous substances. Therefore, the Court charges you that the Government need not prove that this flour or foodstuffs made by the use of it would injure the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case.”

This instruction, given by the Court, is erroneous for the following reasons:

(a) Congress never intended the statute in question should be construed as the trial court construed it in this instruction to the jury.

The prime purpose of the Act is to protect the health and lives of the people by preventing interstate traffic in foodstuffs which, if consumed, would result in injury to health; and at the same time affecting as little as possible the business interests of the country—which consist largely in the production and transportation of the subjects of the act. Harmless foodstuffs are not under the ban of the law. They could not be.

Congress nor any other legislative body has any power to confiscate, condemn and destroy the useful and harmless property of a citizen. This was the idea that the framers of the Act had. The reports of the committees of Congress upon this Act, and especially upon the section (7) of the Act now under consideration, developed the express purpose of denouncing only those things which, if taken within the system, would be absolutely injurious to health. The meaning of this very section was discussed in the committee (Committee Report, February 24, 1904, p. 108; Senate Report, Vol. 4, 58th Congress).

Mr. Queeny, referring to this section, says: "It reads: 'If it contain any added poisonous ingredient or any ingredient which may render such article injurious to the health of the person consuming it.'"

The Chairman: That is the fourth paragraph of the fifth (original) section. What is there in regard to that that you wish to suggest?

Mr. Queeny: I understand that this bill is not for the purpose of legislating against any product that is not known to be poisonous.

The Chairman: No, but it provides a means of determining whether or not it is poisonous.

Mr. Queeny: Known to be poisonous in the quantity in which it is used. * * *

The Chairman: Or injurious to health?

Mr. Queeny: That is right, in the quantity in which it is used.

The Chairman: If that can be determined, then the article comes within the ban of the law.

Mr. Queeny: That is what I want to have understood. I believe the same thing could be accomplished by having that section read: 'If it contain any ingredient which may render such article injurious to health of the person consuming it.'

The Chairman: That paragraph refers back to the former provisions of the same section, so that we do not want to make a separate paragraph of it.

Mr. Queeny: No. My suggestion, if you will allow me, would be to eliminate those words, 'any added poisonous ingredients,' and have it read: 'If it contain any ingredient which may render such article injurious to health of the person consuming it. An article may be poisonous when added to a food if it is added in excess quantities. I speak of bicarbonate of soda—common article of trade—cream of tartar and alum; but they are not poisonous in the quantities in which they are used. There are cases on record of poisoning—'

Senator McCumber (interrupting): The bill gives much more liberty to the manufacturer now than it would under your definition.

Senator Latimer: This says if it shall render it injurious. If you put in an amount which does not render it injurious I do not see how the proposed law will reach you.

Mr. Queeny: But it is a poisonous ingredient if taken in large quantities.

Senator Latimer: But it has to be put in in quantities large enough to become injurious.

The Chairman: The limitation is "which may render such article injurious to the health of the person consuming it."

Mr. Queeny: Here is the provision as it reads now. It is distinct from the other. It reads: "If it contain any added poisonous ingredient—comma—or any ingredient which may render such article injurious to the health of the person consuming it."

The Chairman: There is no comma there. It is all one sentence. The words 'which may render such article injurious' are limitations on the first line.

Senator Latimer: That is right.

Mr. Queeny: You would not consider it a separate paragraph in the bill?

The Chairman: It is not so written in the bill.

Mr. Queeny: That is the point I wish to bring out. An ingredient may be added to a food product which (is) in the proper proportions is not poisonous.

The Chairman: This does not prohibit that. It only says where it may render it injurious to the person consuming it. That is a limitation.

Mr. Heyburn (chairman), who had charge of the bill, replying to a query of Mr. Spooner regarding this same section, said:

“Mr. Heyburn: As to the use of the term ‘poisonous’, let me state that everything which contains poison is not poisonous. It depends on the quantity and the combination. A very large majority of the things consumed by the human family contain, under analysis, some kind of poison, but it depends upon the combination, the chemical relation which it bears to the body in which it exists **as to whether or not it is dangerous to take into the human system.**

Mr. Spooner: This bill provides for a detrimental and diabolical combination: ‘If it contain any added poisonous or other ingredients which may render such article injurious to human health.’

Mr. Heyburn: * * * In other words, after providing carefully against poisons, recognizing the fact that poisons exist independent of any human action in certain commodities, we have provided that (an article which contains) added poisonous or other ingredient **which may render such article injurious to human health** shall be deemed to be adulterated. That is under the definition of

adulterated articles." (Con. Rec., Vol. 40, Part 2, Jan. 16, 1906, p. 1131.)

This construction of the language of the section of the statute under consideration runs through the whole of the long debates had in both houses of Congress during the pendency of the bill, and there is no question whatever but that in the passage of this Act Congress intended the words of this section to be used as above indicated, in their usual and ordinary sense. In other words, it was never intended by Congress that this act should ever be construed to mean that the useful and harmless property of a citizen should, by the methods providing for the prevention of the sale of harmful and injurious foods, be confiscated, condemned and destroyed. This would be contrary to the policy and spirit of our laws and the fundamental principles of our government. These reports and discussions are properly considered by the Court in determining the intention of the Legislature.

Church of Holy Trinity v. United States, 143 U. S. 457, 36 L. Ed. 229, 12 S. Ct. 513.

U. S. v. C. & N. W. Ry. Co., 157 Fed. Rep., *l. c.* 618.

Binns v. U. S., 194 U. S., *l. c.* 495 (48 L. Ed., *l. c.* 1090).

Blake v. Natl. City Bank, 23 Wall. 307 (23 L. Ed. 119).

Wadsworth v. Boysen, 148 Fed. 771.

(b) The language used in the Act in question is not susceptible of the interpretation placed thereon by the trial court.

There is no ambiguity as to the language of the statute. It plainly says, "that for the purpose of this Act any article (in this case, the flour in question) shall be

deemed to be adulterated if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health." Applying the well-known rule of construction that, in determining the meaning of an act, full force and effect must be given, if possible, to every clause and word, we encounter no difficulty in arriving at the conclusion that the statute in question means that an article is adulterated only when the added ingredient, whether poisonous or deleterious, is one "which may render such article (that is the flour) injurious to health".

As said by Mr. Justice Harlan, speaking for the Court in **Montclam v. Ramsdell**, 107 U. S. 147:

"It is the duty of the Court to give effect, if possible, to every clause and word of a statute, avoiding, if it may be, any construction which implies that the Legislature was ignorant of the meaning of the language it employed."

And as said by Chief Justice Marshall in the case of **Postmaster General v. Early et al.**, 6 L. C. P. 147, 12 Wheat. 136:

"The language of the Act is that the District Court shall have cognizance concurrent with the courts and magistrates of the several states, and the Circuit Court of the United States of all suits, etc. What is the meaning and purport of the words 'concurrent with' the Circuit Court of the United States? Are they entirely senseless? Are they to be excluded from the clause in which the Legislature has inserted them, or are they to be taken into view and allowed the effect of which they are capable?

"The words are certainly not senseless. They have a plain and obvious meaning. And it is, we think, a rule that words which have a meaning

are not to be entirely disregarded in construing a statute. We cannot understand this clause as if these words were excluded from it."

Assuming for the moment that nitrites or nitrite reacting material was, by the Alsop Process, added to the flour, as alleged in the libel, and that in its character it was poisonous or deleterious, this, under the plain language of the statute, would not be sufficient to condemn or confiscate and destroy it unless it were further shown that such ingredient was added to the flour in sufficient quantities to render it injurious to health. As was so often said in the discussion of this Act while under the consideration of Congress, the latter words, "which may render such article injurious to health," constitute a limitation upon the previous language of the Act, and, in order to bring an *article of food* within its condemnation, **it must be shown that its consumption would injure the health of the consumer.**

The attempt of the Court, in its charge, to draw upon these words of limitation as an argument to support the position taken by the Court is, to say the least, far fetched and without the slightest support in the ordinary rules of construction of the English language. The Court says: "The word 'poisonous' as an adjective conveys a descriptive meaning, and is used in a qualitative sense, and not a quantitative sense. That is, it refers to the kind of substances, and not to the quantity of the substance."

While it is true that "poisonous" qualifies ingredient, it is equally true that the clause, "which may render such article injurious to health," also qualifies "ingredient". But the Court says not. He says: "This idea or meaning is further emphasized and ren-

dered more certain by the qualifying clause 'which may render such article injurious to health'. It does not say 'which **does** render such article injurious to health'." Suppose it does not. Is the limiting clause to be entirely stricken out? The point is, no matter which word you use, **the trial court absolutely ignored the words of limitation in his construction of the statute.**

The statute treats of foodstuffs **to be consumed**, for the purpose of protecting the people against foodstuffs that, **when consumed**, may be injurious to health. It denounces those foodstuffs which contain any added poisonous or other added deleterious ingredient which may render such foodstuffs injurious to health, and none other.

Giving to all the words of the statute, therefore, their plain, usual and ordinary meaning, it is plain that the trial court erroneously construed it.

CASES IN POINT.

In line with the above argument and contention as to the proper construction of the subdivision of the Act under consideration, we have been able to find only one case in this country which deals directly with this construction. It is the case of **French Silver Dragee Co. v. United States**, 179 Fed. Rep. 824, wherein it is said:

"The interpretation given to the statute by the trial court was that the words 'or other mineral substance', following the phrase 'in the case of confectionery: If it contain terra alba, barytes, talc, chrome yellow'—broadly included every mineral substance, including silver. The defendant, on the other hand, contends that the different

clauses of the sub-section in question should be construed together, and that, so construed, they embrace only those substances which are deceptive or detrimental to health.

“Interpreting the provision as embracing in the phrase ‘or other mineral substances’ all mineral substances whatsoever, it is apparent that the use of the mineral substances, salt, sulphur and baking soda, in the manufacture of confectionery—and it appears that they are so used—would render the product adulterated within the meaning of the statute, and its sale unlawful. Similarly, the use of silver to coat these dragees would violate the act. But the product in which the salt, sulphur, baking soda or silver was used would not be unhealthful, nor would there be any element of deceit present. The provision so construed would arbitrarily prohibit the use of all mineral substances in confectionery, would accomplish thereby none of the purposes of the act, *and would apply a different standard in the case of confectionery than in the case of food or drugs.* Unless the language of the statute imperatively requires such construction, it should not be adopted by the courts. * * *

“Stated in another way, we think that the history of the Act, the objects to be accomplished by it, and the language of all its provisions require that it should be so interpreted that in the case of confectionery, as in the cases of food and drugs, the Government should establish, with respect to products not specifically named, that they either deceive, or are calculated to deceive, the public, or are detrimental to health; and, as no proof was offered in this case tending to show that the confectionery in question was either deceptive or injurious, the defendant was improperly convicted”

It will be noticed that the learned judge, in interpreting the construction of the subdivision relating to confectionery, refers to the subdivision which we are discussing relating to foods as necessarily requiring that the added substance shall be sufficient to render the article of food injurious to health, and applies the same construction to the subdivision relating to confectionery, on the broad ground that the object of the statute, as shown by the provision relating to foods, is to protect the health of the people by denying interstate transportation to such articles of food only that would be injurious to health when consumed. In other words, he finds no difficulty whatever in construing the subdivision relating to foods just as we contend that it should be construed, and just as it reads.

On the point of the construction of Subdivision 5th, Article 7, of the Act given by the Court below, we cite the following foreign authorities:

Friend v. Mapp, 68 J. P. 589;

Hull v. Horsnell, 68 J. P. 591.

The English court had under consideration a statute very similar to ours, Section 3 of which is as follows:

“No person shall mix, color, stain or powder, or order or permit any other person to mix, color, stain or powder, any article of food with any ingredient or material so as to render the article injurious to health.” (38 and 39 Vict., Ch. 63, Sec. 3.)

In the case of **Friend v. Mapp**, the respondent is summoned for selling preserved peas, the color of which had been retained by the addition of **sulphate of copper**.

The Government charged in the libel or information

that sulphate of copper was a poisonous substance and injurious to health; that the copper was used to preserve the color of the peas; but it was admitted by the Government that they had never known any one to be injured by eating peas containing copper.

The defense contended that the information disclosed no offense under the Act, but it did not allege that the mixture of the ingredient rendered the article of food, namely, the peas, injurious to health, but merely that the ingredient was injurious.

The prosecution contended that that was sufficient, and that it was not necessary to show that the ingredient rendered the article of peas injurious to health.

The lower court held that sulphate of copper is injurious to health, and that that ingredient necessarily rendered the whole article so injurious to health.

Lord Alverstone, C. J., reversing the case on appeal, said:

“I have no doubt that in order to convict under Section 3 (the one heretofore quoted) the **article of food** must be shown to be injurious to health by the **addition** of some ingredient.”

The other case (**Hull v. Horsnell**) was of a similar character to the first one. The peas in this case, however, were shown to contain 2.55 grains of copper per pound as having been added to the peas.

The Government showed that copper is not a normal constituent of the peas or of the human body, and that a medical dose of sulphate of copper is from one-half to two grains, and acts as an astringent, and that in large doses sulphate of copper acts as an irritant, and is apt to produce vomiting, and is a cumulative poison:

That occasional quantities would not harm a healthy

individual, but that habitual consumption thereof might be injurious to health;

That the copper was added to preserve the peas and to give them a fresh, bright green color.

The Government admitted that such peas had been generally used for some years, and that they knew of no recorded case of injury arising from their consumption.

The Government contended in that case:

(1) That sulphate of copper was **foreign** to said preserved peas;

(2) That the addition of copper in the proportions named was injurious to health.

The **defense** was that the purchaser asked for preserved peas, and was supplied with what is usually known as preserved peas.

The lower court found generally that in preserved peas copper was used, and that the **quantity** of copper present in this instance was not sufficient to render the **peas** injurious;

That they asked for preserved peas, and were supplied with peas **usually** known and sold as preserved peas, and not containing any **foreign** ingredient **other** than that which is **usually** found in preserved peas, and in no greater **quantity**.

Lord Alverstone, C. J., on appeal, sustained the lower court and held the defense good.

The foregoing English cases are also cited upon the proposition that while the substance in the flour (or peas) may be qualitatively poisonous, they do not thereby render the food product injurious to health.

(c) The **Act** as construed by the trial court is arbitrary and an unreasonable interference with the rights of property.

While a large discretion is vested in the legislative branch of the Government in determining what laws shall be enacted for the regulation of interstate commerce its power in that regard is not unlimited. It cannot act arbitrarily. And whether or not the restrictions and prohibitions are reasonable or arbitrary must be subject to final review by the courts.

The delimitation of the legislative power in this regard is well stated in the case of **Jew Ho v. Williamson**, 103 Fed. 10. In that case the rule was laid down by Morrow, Circuit Judge, as follows:

“A large discretion is necessarily vested in the state or municipal authorities in determining what is a proper exercise of the police power of the state for the protection of the public health, and what measures are necessary to meet particular conditions or emergencies; but their determination is not final, and is subject to supervision by the courts. They cannot, under the guise of protecting the public, arbitrarily interfere with private business or impose unusual or unnecessary restrictions upon lawful occupations, and whether they have done so in a particular case is a judicial question.”

This court has in a number of cases reviewed the action of the Legislature of different states and declared illegal acts passed by the different states, on the ground that it was an arbitrary exercise of power, and did not in truth and in fact tend to promote health.

While we do not urge that the Act of June, 1906, under which this prosecution was brought, shows on its face an arbitrary exercise of power (even if it is conceded that Congress has the power to enact such legislation), yet we do insist that the interpretation of the law as made by the trial court is an arbitrary exer-

cise of power, without any reference to whether or not the flour seized was or was not adulterated and whether or not the flour in question would be injurious to health.

The act under which this proceeding was brought forbids the adding to an article of food of any poisonous or other deleterious ingredient "**which may render it injurious to health.**" It will thus be seen that Congress did not intend to condemn nor to prohibit the sale of an article except such as in the language of the Act "may be injurious to health". Indeed, it must be plain to any one that Congress would not have the authority or the power to arbitrarily exclude from the markets an article which was intended for consumption as food, and which was not in any way injurious to health.

Flour is a recognized subject of commerce. Civilized man recognizes it as a food product. It is hardly conceivable that Congress intended to exclude from the markets any flour made by whatever process, unless the same had been rendered injurious to health. To exclude it from the market when not injurious to health would be unwarranted and wholly beyond the powers of any legislative authority.

The instruction requested by the respondent contained this language:

"In this connection you are instructed that it is incumbent upon the Government to prove that any such added poisonous or other added deleterious ingredients, if any, contained in said flour are of such a character and contained in the flour in such quantities, conditions and amounts as may render said flour injurious to health" (Rec., p. 2009).

This the trial court refused to give, but said to the jury:

“The Court charges you that the Government need not prove that this flour or foodstuffs made by the use of it would injure the health of any consumer. It is the character, not the quantity, of the added substance, if any, which is to determine this case” (Rec., p. 2023).

The respondent showed by the testimony of Prof. John Wesener, a graduate of the College of Physicians and Surgeons in Chicago; one who had held the chair of chemistry in the University of Illinois for twelve years; president of the Columbus Laboratories in the City of Chicago, and who for many years made a study of bleached and unbleached flours, and was as well qualified to testify as to the effect upon flour of the process in question as any man in the United States (Rec., p. 1040);

By Prof. Lucius E. Sayre, a graduate of the Philadelphia College of Pharmacy, a dean of the School of Pharmacy of the University of Kansas; a member of the American Chemical Society and of the American Pharmaceutical Association; a member of the Committee of Revision of the United States Pharmacopeia, and one who has made a great study of the effect of bleaching upon flour (Rec., p. 1274);

By Dr. Albert W. Rockwood, Professor of Chemistry and Toxicology in the University of Iowa, and who for many years has been head of the Department of Chemistry in that university (Rec., p. 1599);

By Prof. Willard, Professor of Chemistry in the Kansas State Agricultural College, and who for four years prior to the trial of this case had been making

a study of the bleaching of flour and the effect thereof (Rec., p. 1640);

By Dr. Ralph W. Webster, a graduate of the University of Chicago and of the Rush Medical College in Chicago, and who for a number of years has been specializing in physiological chemistry and toxicology, and who had made a study of the effect of bleaching upon flours (Rec., p. 1796);

By Dr. Walter M. Cross, a graduate of the University of Kansas, and of its Medical College, and who for ten years has conducted a commercial laboratory in the City of Kansas City, and for six years has been chemist to the municipality of the corporation of Kansas City (Rec., p. 1538);

By Prof. Walter S. Haines, the Professor of Chemistry and Toxicology in the Rush Medical College; a lecturer on toxicology in the University of Chicago, a member of the Committee on Revision of the United States Pharmacopeia; who has made a special study of flours treated by the Alsop process, and who stands in his profession the peer of any in the whole United States (Rec., p. 1841);

By each and all of these witnesses, as well as others qualified to testify as to the effect of this treatment, it showed that the flour in question did not contain any added poisonous or any added deleterious ingredient that could in any manner render it injurious to health.

The evidence of Dr. Haines on this subject fairly reflects the testimony of the other witnesses last above referred to, and the testimony of Dr. Haines, touching this matter was as follows:

“Q. Assuming that the flour in this case was bleached by the Alsop process, and as a result of

that bleaching the flour contained 1.8 parts per million of nitrite reacting material and that bread made from such flour contained all the nitrite reacting material that was in the flour, what is your opinion as to the possibility of harm from the constant daily eating of such bread?

“A. I do not think it could produce the slightest harm.

“Q. Now, under the assumption of my last question, what would you say as to the possibility of such bread, in reference to those nitrites producing any effect whatsoever upon the system?

“A. I do not think it would have the slightest effect of any kind on the system” (Rec., p. 1841).

In this conclusion these witnesses are sustained by the opinion of the High Court of Justice, Chancery Division, of England, in the case decided in 1909, entitled “Flour Oxidizing Company, Limited, v. J. & R. Hutchinson, Vol. 26, Reports of Patents, Design and Trade-Mark Cases, No. 21, pages 597-638”. The Court in that case had under consideration the effect upon flour treated in identically the same manner as in the case at bar. In reviewing the entire case, Warrington, Judge, speaking for the court, said:

“It seems to me, therefore, that, whether you regard it from the point of view of digestion, whether you regard it from the point of view of nutrition, or whether you regard it from the point of view of positive harm, I must come to the conclusion that the plaintiffs have established the truth of the statement in Andrews’ specification that no deleterious action on the flour in question is caused by the above-mentioned treatment.”

The Referee Board of Consulting Scientific Experts

in the United States Department of Agriculture is in full accord with the witnesses for the respondent, that toxicity is dependent on quantity; and that substances qualitatively poisonous may be perfectly innocuous in minute, or even small, amounts. These eminent scientists directly oppose the theory of the Government in this case that a substance known to be harmful in large amounts is proportionately harmful in the minutest conceivable amount. This is shown in the following report of the Referee Board, which we reproduce in full:

UNITED STATES DEPARTMENT OF AGRICULTURE.

Office of Consulting Scientific Experts.

January 13th, 1912.

*To the Secretary of Agriculture,
Washington, D. C.*

SIR:

In reply to your request under date of December 30, 1911, that the Referee Board discuss Food Inspection Decision 135 and give a definite statement showing the opinion of the Referee Board as to whether the decision in question is in harmony with the conclusions presented by the Board in its Report on the Influence of Saccharin on the Nutrition and Health of Man, the Referee Board respectfully submits the following statements:

1. The findings of the Referee Board, based upon what would seem to be convincing, experimental evidence, are that small quantities of saccharin, up to 0.3 gram per day, are without deleterious or poisonous action and are not injurious to health. This being so, it would seemingly follow that foods to which small quantities of saccharin have been added—in amounts insufficient

to result in a daily intake of more than 0.3 gram—cannot be considered as adulterated, since foods so treated do not contain any added deleterious ingredient which may render the said food injurious to health.

Admitting that large quantities of saccharin—over 0.3 gram per day—taken for long periods of time may impair digestion, such evidence cannot consistently be accepted as an argument in favor of the view that smaller quantities must constitute a menace to health. It is often claimed that any substance having a deleterious effect on health when taken in large amount, must necessarily be injurious even when consumed in very small quantities, and that it is dangerous to differentiate on the basis of quantity. There is, however, no justification for such a view from a physiological standpoint. Common custom, for example, sanctions the free use of vinegar or dilute acetic acid as a preservative; yet it is well known that in larger quantity acetic acid is a dangerous substance. Common salt, while harmless when taken in small quantities, may become a serious menace to health if taken in larger quantities. The hydrochloric acid of the gastric juice is not only harmless but is essential for the welfare of the body, yet when its concentration is increased beyond a certain point it becomes a poison. It is evident, therefore, that the decision as to whether a certain substance is or is not injurious to health must take into account the quantity of the substance that is involved. The Referee Board is compelled, on the basis of the experimental evidence, to hold to the view that the addition of *small* quantities of saccharin to food does not constitute an adulteration, since there is no evidence that small quantities of the substance are deleterious to the health of normal adults.

2. The *addition* of saccharin to foods, in large

or small quantities, does not, so far as the findings of the Referee Board show, effect in any way the quality or strength of the food. This statement is not in any sense contradictory to, or lacking in harmony with, the statement that the addition of saccharin to a food as a substitute for cane sugar is a substitution involving a reduction in the food value of the sweetened product and may thus result in a reduction in its quality. The simple addition of saccharin to a food cannot, in the opinion of the Referee Board, be considered as an adulteration through any reduction in the strength or quality of the food, since no such effect follows its addition to the food. On the other hand, the *substitution* of saccharin for cane sugar, for example, in any food product may result in a decided lowering of food value, and this must certainly be considered as an adulteration.

In the opinion of the Referee Board the use of saccharin in food in quantities that might constitute a menace to health is improbable, since its extreme sweetness would naturally limit its consumption by the individual to amounts below what might prove injurious (in harmony with the conclusions expressed in the original report of the board). On the other hand, the possibility of substituting saccharin for sugar, thereby lowering the food value of the sweetened products, is a serious menace, and one that should be carefully safeguarded.

Yours very respectfully,

(Signed) IRA REMSEY, *Chairman*,
(Signed) RUSSELL H. CHITTENDEN,
(Signed) JOHN H. LONG,
(Signed) ALONZO E. TAYLOR,

*Referee Board of Consulting Scientific
Experts.**

*The absence of Dr. Theobald Smith in Europe accounts for the fact that his signature is here lacking.

If the testimony above referred to is to be believed and the flour in controversy did not contain anything which might render it injurious to health, and if by its treatment with the Alsop process no added poisonous or added deleterious ingredients which might render it injurious to health were imparted to it, then, we submit, it is wholly without the power of Congress or any other branch of the Government to exclude it from the channels of commerce or to prohibit its sale.

The fact is, Congress has not undertaken to exclude flour such as this from the markets. Congress did not attempt to exclude from the markets any flour except such as "may be injurious to health." The trial court, however, by its instructions forced the condemnation and destruction of this flour, even though it contained nothing which would in any wise render it injurious to health.

This is not the exercise of a legislative power, but is an arbitrary and illegal taking of property without due process of law and a denial to the respondent of the right of contract, the right to sell in the markets of the country a product harmless in itself and which has been recognized as a food product since the days of civilization.

This Court has in many cases condemned such arbitrary action on the part of legislative bodies, and we submit should equally condemn such arbitrary action on the part of trial courts.

In the case of **Powell v. Pennsylvania**, 127 U. S. 678, an Act passed by the State of Pennsylvania in the exercise of its police power was under consideration, and this Court said:

“The answer made to all this reasoning and this decision is that the Act of Pennsylvania was passed in the exercise of its police power, meaning by that term its power to provide for the health of the people of the state. Undoubtedly this power of the state extends to all regulations affecting not only the health but the good order, morals, and safety of society. But a law does not necessarily fall under the class of police regulations because it is passed under the pretense of such regulation as in this case by a false title purporting to protect the health and prevent the adulteration of dairy products and of fraud in the sale thereof. It must have in its provision some relation to the end to be accomplished. **If that which is forbidden is not injurious to the health or morals of the people, if it does not disturb their peace or menace their safety, it derives no validity by calling it a police or health law.**” (Bold-face type ours.)

That language is very appropriate to the case at bar, and the instructions given and refused by the trial court should be measured thereby.

If the testimony of the witnesses presented by the respondent can be believed, then the flour in question was in no manner injurious to the health of any person.

The further language of the Court in that case is well to be remembered when it said:

“Whatever name it may receive, it is nothing less than an unwarranted interference with the rights and liberties of the citizens.” * * * Under the mere guise of police regulation, personal rights and private property cannot be arbitrarily invaded, and the determination of the

Legislature is not final and conclusive. If it passes an act ostensibly for the public health, and thereby destroys or takes away the property of a citizen and interferes with his personal liberty, then it is for the courts to scrutinize the act and see whether it really relates to and is convenient and appropriate to promote the public health. It matters not that the Legislature may in the title of the act or in its body declare that it is intended for the improvement of the public health. Such a declaration does not conclude the courts and they must yet determine the fact declared and enforce the supreme law."

The same rule was announced by this Court in the cases of

Mugger v. Kansas, 123 U. S. 623;

Schollenberger v. Pennsylvania, 171 U. S. 1 (18 S. C. R. 757);

Collins v. New Hampshire, 171 U. S. 30 (18 S. C. R. 768);

Lochner v. New York, 198 U. S. 45 (25 S. C. R. 538.)

The amount of nitrites which the flour in question contained was shown by the Government's experts to be not to exceed 1.8 parts per million (Winton, Rec., p. 150), and the testimony of the witnesses on behalf of the respondent who had given years of study to this question, who had approached it from every conceivable standpoint, who had made every experiment and investigation known to chemical science, all agree that the flour in question—if it be admitted that it contained 1.8 parts per million of nitrites—was absolutely harmless: that the amount it was thus made to contain

was a negligible quantity, wholly incapable of having any effect whatever upon the human system, and wholly incapable of producing any harmful results whatever.

The decision of the Supreme Court of the United States in the Schollenberger case clearly shows that it would not be within the power of any legislative body possessing police powers to exclude from the markets this article if it was entirely harmless and a healthful food product.

As was said by the Court:

“A law which does thus prohibit the introduction of an article like oleomargarine” (like the flour in question) “is not a law which regulates or restricts the sale of articles deemed injurious to the health of the community, but is one which prevents the introduction of a perfectly healthful commodity merely for the purpose of in that way more easily preventing an adulterated and possibly injurious article from being introduced.”

That same rule was followed by the Supreme Court of the United States in the case of **Collins v. New Hampshire**, 171 U. S. 30 (18 S. C. R. 768), where it was held:

“In whatever language a statute may be framed, its purpose must be determined by its natural and reasonable effect, and such purpose is to be taken into consideration in passing on its validity.”

We repeat that Congress did not intend by this act to prohibit the sale of an article that was harmless and

which was a valuable food product. If the flour in question be as harmless as was testified to by the witnesses whose names we have above set forth; if it be true, as stated by these witnesses, that there is nothing in this flour which could in any manner be injurious to health or have any injurious effects upon any person who might consume it; if that is the true condition of the flour, then it must be plain that Congress never intended to exclude this flour from the market.

It must be very plain that the trial court by his instructions entirely eliminated from the act under which these proceedings are had the qualifying words "which may render it injurious to health". By the instructions which he gave on this branch of the case, he ignored those words and refused to submit to the jury the question as to whether or not the flour in question contained anything which might render it injurious to health.

This Court, in the case of **Lochner v. New York**, 198 U. S. 45 (25 S. C. R. 539), held unconstitutional the law enacted by the State of New York governing employment in bakeries. This act was declared unconstitutional on the ground that it was an unwarranted attempt to exercise police powers, and a mere arbitrary rule without reasonable foundation on which to base it.

The mere assertion that the adding of nitrites to flour by this process in a remote degree relates to public health does not necessarily render this flour subject to confiscation. The question must be met as to whether or not this carload of flour which is now sought to be condemned and destroyed contained anything which in the language of the act "may render

it injurious to health''. The fact that some other flour under some other conditions might be injurious to health, or the fact that nitrites if taken in concentrated form and under certain conditions might be injurious to health, is not sufficient to justify the condemnation and destruction of this flour.

In the case at bar, if the testimony to which reference has been made can be believed, then there is no reasonable foundation for holding that it is necessary or appropriate to safeguard the public health or the health of the individuals to destroy and condemn the flour in question.

This doctrine is also maintained by the several state courts as shown by the following decisions:

In the case of **State v. Layton**, 160 Mo. 474, the Supreme Court, in quoting approvingly from a decision of the United States Supreme Court, say:

“Said the Supreme Court of the United States in **Mugler v. Kansas**, 123 U. S., *l. c.* 661: ‘It does not follow that every statute enacted, ostensibly for the promotion of these ends (that is the health, morals and safety of the people) is to be accepted as a legitimate exertion of the police powers of the state. There are, of necessity, limits beyond which legislation cannot rightfully go’. * * * ‘To what purpose’, it was said in **Marbury v. Madison**, 1 Cranch. 137, ‘are powers limited, and to what purpose is that limitation committed in writing, if these limits may, at any time, be passed by those intended to be restrained?’ * * * The courts are not bound by mere forms, nor are they to be misled by mere pretenses. They are at liberty—indeed, are under a solemn duty—to look at the substance of things, whenever they enter upon the inquiry whether the Legislature has transcended the limits of its authority. If, therefore,

a statute purporting to have been enacted to protect the public health, the public morals, or the public safety, has no real or substantial relation to those objects, or is a palpable invasion of **rights secured by the fundamental law**, it is the duty of the courts to so adjudge, and thereby give effect to the Constitution."

In the case of **State v. Addington**, 12 Mo. App., *l. c.* 219, the Court says:

"But extensive as this (police) power is, it may be conceded that an act of the Legislature in restraint of liberty or of property which exceeds a reasonable exercise of it, so that in fact it is not an exercise of the police power, but a capricious invasion of private right, will be held unconstitutional and void by the judicial courts."

And in the case of **State v. Fisher**, 52 Mo. 174, it is said:

"A law which unnecessarily and oppressively restrains a citizen from engaging in any traffic, or disposing of his property as he may see fit, although passed under the specious pretext of a preservation of the health of the inhabitants, would be void. Such a law would be unreasonable and would deprive the people of the **rights guaranteed to them by the organic law of the land**."

The same Court, quoting approvingly from **Toledo v. Jacksonville**, 67 Ill. 37, say:

"It is not within the power of the General Assembly under the pretense of exercising the police power of the state, to enact laws not necessary to the preservation of the health and safety of the community, that will be oppressive and burden-

some upon the citizen. If it should prohibit that which is wholesome in itself, or command that to be done which does not tend to promote the health, safety or welfare of society, it would be an injurious exercise of power, and it would be the duty of the courts to declare such legislation void."

In the case of **River Rendering Co. v. Behr**, 77 Mo. 9, the Court say:

"The ordinance in question cannot be maintained as a police regulation. It can never be necessary to take from one man his property to give it to another, until the property is in such condition that it is, or is so used that it is likely to become a **nuisance**; and even in the latter case, **until it has become a nuisance**, an opportunity should be given the owner to change the use, or make such disposition of his property as will prevent the apprehended danger."

The case of **McConnell v. McKillipp**, 71 Neb., p. 712, was a case where the game law of Nebraska provided for seizure and confiscation of the gun or other weapon of the hunter when caught hunting "out of season". In a case where the statute was invoked the Court say:

"No case has been brought to our attention in which a court has construed a statute which provides for the seizure, forfeiture to the state, and sale of property of the kind involved in this case which has been used in violation of the game laws. * * * In **Colon v. Lisk**, 153 N. Y. 188, 60 Am. St. Rep. 606, 47 N. E. 302, a later case than **Lawton v. Steele**, a statute providing that every vessel unlawfully used in interfering with oysters planted in the waters of the state may be seized by the game

protectors, and upon six days' notice a Justice might take evidence, and, if found to be so engaged, the vessel should be ordered sold and the proceeds paid to the commissioner of fisheries, game and forestry, was held unconstitutional, the Court saying: 'It is to be observed, in passing, that the use for which vessels and fixtures may be forfeited under this act **does not constitute a nuisance**, either at common law, or under this or any other statute. Nor is the property itself a nuisance. Hence it is obvious that the validity of this act cannot be maintained upon the ground that either the act or the property is a public nuisance, and, consequently, that the Legislature had the power to authorize its abatement.' "

III.

THE INTERPRETATION PLACED UPON THE ACT OF JUNE, 1906, BY THE CIRCUIT COURT OF APPEALS IS REASONABLE, GIVES EFFECT TO ALL THE LANGUAGE CONTAINED IN THE ACT, AND IS THE ONLY INTERPRETATION UNDER WHICH ITS CONSTITUTIONALITY CAN BE SUSTAINED.

(a) In construing the Act of 1906, so far as it applied to the issue of adulteration, the Court of Appeals gave effect to the words, "Which may render such article injurious to health". The trial court, by its interpretation of the law, completely ignored those words. In considering this matter the Circuit Court of Appeals said:

"The object of the law was evidently: (1) to insure to the purchaser that the article purchased was what it purported to be; and (2) to safeguard the public health by prohibiting the inclusion of

any foreign ingredient deleterious to health. **Hall-Baker Grain Co. v. United States** (C. C. A.), 198 Fed. 614. The statute is to be read in the light of these objects, and the words 'injurious to health' must be given their natural meaning. It will be observed that this paragraph of the statute does not end with the words 'added deleterious ingredient'; but as a precaution against the idea embodied in the instruction complained of, it says, 'which may render such article injurious to health.' Without these latter words, it might with more force be argued that deleterious and beneficent ingredients are to be divided into two general classes, independent of their particular effect, in the actual quantities administered, but the possibility of injury to health due to the added ingredient and in the quantity in which it is added is plainly made an essential element of the prohibition. The investigation does not stop with the consideration of the poisonous nature of the added substance. It is added to the article of food, and the statute only prohibits it if it may render such article—the article of food—injurious to health." * * *

"The instruction complained of eliminated the consideration of any possible injurious effect from the use of flour as an article of food and was erroneous." * * *

"The constitutionality of the Food and Drugs Act is attacked by the plaintiff in error and was exhaustively argued. The point of the attack is that the statute as construed by the trial court applied to food products in fact entirely innocuous, and which could not possibly be injurious to health or deceptive. As we have not so interpreted the statute, it is not necessary to express any opinion as to the validity of a statute excluding from interstate commerce harmless food products which are offered for sale without deception."

The instructions requested by the respondent are in harmony with the interpretation of the law as made by the Circuit Court of Appeals. By this interpretation each part of the statute is given its usual and ordinary meaning. If Congress had intended to place under the ban of the law each and all of these food products where a substance deleterious in its nature was added to it, without regard to the effect such ingredient had upon the food product, then it is fair to assume that Congress would have omitted from the act the words "which may render such article injurious to health".

Congress evidently realized to the fullest extent that to prohibit the sending of this flour into interstate commerce when the flour was in no wise injurious to health would be an arbitrary and unwarranted interference with the right of the Lexington Mill & Elevator Company, and that such an attempt on its part would not be sustained by this Court.

The purpose which Congress had in view in the enactment of this statute was to protect the health of the citizen. If the flour seized in this case could not under any circumstances, due to the fact that it had been treated by the Alsop process, become injurious to health, then there was no reason why Congress should legislate respecting it, and no reason why it should attempt to forbid the placing of the flour into interstate commerce.

The rule of construction or interpretation of statutes adopted by the Circuit Court of Appeals was in harmony with the rule laid down by this Court in the case of **Knowlton v. Moore**, 178 U. S. 41, where it was said:

"We are, therefore, bound to give heed to the rule that where a particular construction of a

statute would occasion great inconvenience or produce inequality and injustice, that view is to be avoided if another and more reasonable interpretation is present in the statute.” (Citing **Refrigerator Co. v. Sulzberger**, 157 U. S. 37; **Wilson v. Rosseau**, 4 How. 646; **Bloomer v. McQuewan**, 14 How. 539; **Blake v. Nat’l Bank**, 23 Wall. 387; **United States v. Kirby**, 7 Wall. 482.)

That was in perfect harmony with the rule of construction of statutes laid down by this Court in the case of **Collins v. State of New Hampshire**, 171 U. S. 30, as follows:

“In whatever language a statute may be framed its purpose must be determined by its natural and reasonable effect, and such purpose is to be taken into consideration in passing on its validity.”

The language used by the Circuit Court of Appeals of the Eight Circuit in the case of **Interstate Drainage & Investment Co. v. Board of Commissioners**, 158 Fed. 270, announces a well recognized and reasonable rule of construction. The language used is as follows:

“The essential object in judicial construction of statutes should be from a consideration of all its parts to discover the legislative mind in enacting it. When the true intention is ascertained, it should prevail over literal terms. So when the expression is special or particular but the reason general, the special should be deemed general. Any construction that leads to absurd results should be avoided when the trend of the act admits of a different sensible application.”

Apply that rule to the case at bar, and there would

be no question of the soundness of the interpretation of the act in question as made by the Circuit Court of Appeals. The construction placed upon the act in question by the trial court "leads to absurd results" which, as said by that court, "should be avoided", while the construction placed on it by the Court of Appeals is in every way a "sensible application".

The statute in question is a penal statute and the rule applicable to the construction of such statutes was well stated by Sanborn, Circuit Judge, in the case of **Martin v. United States**, 168 Fed. 198 (201), as follows:

"In the absence of this section, the act of the plaintiff was neither legally nor morally wrong. The punishment it prescribes is severe, and a penal statute which creates and denounces a new offense should be strictly construed. The definition of such an offense and the classification of the offenders are legislative and not judicial functions. An act which is not by the express will of Congress an offense may not be made so after its commission by a broad construction of the statute subsequently adopted by the judiciary. One who does not fall clearly within the class of persons specified in such a law before he performs the act charged upon him may not be brought within that class after the event by judicial construction."

United States v. Wiltberger, 5 Wheat. 77;

United States v. Germaine, 99 U. S. 508;

Field v. United States, 137 Fed. 6;

United States v. Lake, 129 Fed. 499.

(b) The intent of Congress, as indicated by the title of the Act, was to make the condition of the food the determining factor of adulteration.

The title of the Act is as follows:

“An act for preventing the manufacture, sale or transportation of adulterated or misbranded or **poisonous or deleterious foods**, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes.”

It will be seen from this title that the act was directed against, *inter alia*, “poisonous or deleterious foods”. There can be no question here as to what the words “poisonous” and “deleterious” qualify. It is “foods”; not “ingredient”. Manifestly a food cannot be poisonous or deleterious unless, when consumed, it will produce harmful or untoward effects upon the human system. The act is directed against poisonous and deleterious foods which are such **from their condition**, *e. g.*, that of putrefaction, as well as against poisonous and deleterious foods which are rendered such by the addition of an added poisonous or deleterious ingredient. (See sub-division 6. of Section 7, of the act.) But in either case it is the character of the food in relation to health which is made the determining factor. Obviously a pure, wholesome, food cannot be rendered poisonous or deleterious by an added substance unless that substance, by its presence, is capable of transforming the food into an unwholesome product. The quantity of the added substance required to work this transformation may be relatively large, or relatively small. We do not understand that the law is concerned with quantity, *per se*, at all. The question to be answered is not “How much has been added” or “How much may be added without injury to health”? In certain cases, the determination of these questions may be involved in arriving at the ultimate fact. But that ultimate fact depends for its solution, under the law as we conceive

it, upon the answer to the broader question: "Has that which has been added rendered the article of food injurious to health"? Clearly this may be referable to the character of the added substance, irrespective of quantity. Milk or water containing typhoid or tubercular bacilli would be condemned, not on a quantitative or qualitative theory, but because the **character** of these ingredients renders the milk or water dangerous for human consumption. We have never contended that this law imposed upon court or jury the burden of deciding how much of an alleged poisonous substance it would be safe to add to foods. This would be requiring legislation of the courts. But what we do contend is that the law is directed against all poisonous or deleterious **foods**, of which those rendered so by the addition of harmful substances are only a class; and that it imposes on court or jury the duty of deciding the character, in these respects, of such foods as may be brought in question.

We submit, therefore, that the Circuit Court of Appeals was clearly right in the following statement and finding:

"It will be observed that this paragraph of the statute does not end with the words "added deleterious ingredient", but as a precaution against the idea embodied in the instruction complained of, it says "which may render such article injurious to health". Without these latter words it might, with more force, be argued that deleterious and beneficent ingredients are to be divided into two general classes independent of their particular effect in the actual quantities administered, **but the possibility of injury to health due to the added ingredient and in the quantity in which it is added is plainly made an essential element of the prohi-**

bition. The investigation does not stop with the consideration of the poisonous nature of the added substance. It is added to the article of food and the statute only prohibits it if it may render such article—the article of food—injurious to health”.

The principle of construction adopted by the Court of Appeals is amply sustained in numerous decisions, of which we quote briefly from a few below:

“The popular and received import of words furnishes the general rule for the interpretations of public laws.”

Maillard v. Lawrence, 16 How. (U. S.) 251.

“The Legislature must be presumed to use words in their known and ordinary signification, unless that sense be repelled by the context.”

Levy v. M'Cartee, 6 Pet. U. S. 110.

“I think I may say that unless there be something in the context which deflects the word from its ordinary meaning, and shows a clear intention to use it in a more general or a more limited sense, the former ought to prevail.”

Per Justice Story in *Parsons v. Hunter*, 2 Sumn. U. S. 422.

“It is a general rule, without exception, in construing statutes, that effect must be given to all their provisions, if such a construction is consistent with the general purposes of the Act, and the provisions are not necessarily conflicting.

Bernier v. Bernier, 147 U. S. 246.

“We are not at liberty”, said Mr. Justice Strong, “to construe any statute so as to deny effect to any part of its language. It is a cardinal rule of statutory construction that signification and effect, shall, if possible, be accorded to every word.

As early as in Bacon's Abridgement it was said that 'A statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word, shall be superfluous, void, or insignificant'; this rule has been repeated innumerable times."

Washington Market Co. v. Hoffman, 101 U. S. 115.

To the same effect see

U. S. v. Fisher, 109 U. S. 145;

Lake Superior Ship Canal Co. v. Cunningham, 155 U. S. 380;

Rhodes v. Iowa, 170 U. S. 423.

"Where a law is expressed in plain and unambiguous terms, whether those terms are general or limited, the Legislature should be intended to mean what they have plainly expressed, and consequently no room is left for construction."

Mr. Justice Lamar in Lake County v. Rollins, 130 U. S. 670.

"The cases are so numerous in this court to the effect that the province of construction lies wholly within the domain of ambiguity," said Mr. Justice Brown, "that an extended review of them is quite unnecessary."

Hamilton v. Rathbone, 175 U. S. 421.

"Attempted judicial construction of the unequivocal language of a statute serves only to create doubt and to confuse the judgment."

Swarts v. Seigel (C. C. A.), 117 Fed. Rep. 18.

See also:

Glover v. U. S., 164 U. S. 298;

Harless v. U. S. (C. C. A.), 88 Fed. Rep. 102.

We believe no one on reading the section of this statute under discussion, would get any other idea from

it than that which the language thereof on its face clearly imports. The contention of the Government not only involves a distortion of language as well as meaning, but, as we have heretofore stated, it requires the absolute cancellation of the words which the proceedings in Congress, as heretofore alluded to, show were deliberately and intentionally placed in the section to avoid the identical construction which the Government now seeks to place upon this section.

(c) **The construction of the law contended for by the Government would render contraband many admittedly harmless articles of food.**

To say that a substance is qualitatively poisonous is merely to give it a name without attributes. Such substances may or may not be harmful, according to circumstances. There are many substances, qualitatively poisonous, which in appropriate amounts are not harmful even if used continuously. As familiar illustrations of these may be mentioned potassium chloride, common salt, baking powder, acetic acid of vinegar and cider, alcohol, benzoic acid, and benzoate of soda. (See testimony of Government witnesses, Folin, p. 883, and Stengel, p. 821-822). Yet each of these substances will produce serious injury and death if taken in a sufficiently large amount. The term "qualitatively poisonous" applies just as certainly to baking powder, vinegar, table salt, etc., as it does to nitrites. If the law is to be construed to bar from interstate commerce all food products which may contain an added substance which is **qualitatively** poisonous, and for that reason only, it will just as certainly apply to every food product containing salt, baking powder, vinegar, alcohol, and benzoate of soda, as it will to bleached flour containing nitrites.

The words "poisonous" and "deleterious" connote, when applied to a substance, that it has the property, or power, of acting to produce an effect, when consumed, which is detrimental or injurious to health. If, as a matter of fact, it **does** not so act, or further, if it **cannot** so act, it is neither the one nor the other. Such a substance is within neither the terms nor the spirit of the law, which has for its object the protection of the health of the consuming public. In the light of human knowledge and experience, it is preposterous to say that the addition to foods of all substances **qualitatively** poisonous is prohibited by law, because scores of substances perfectly innocuous as ordinarily used, and of which we have given a few examples, are **qualitatively** poisonous. Unless, therefore, the law is to be made an absurdity, the question of fact to be determined is not the **name** of the added ingredient, but whether the use thereof may render the article of food injurious to health. The law deals with facts, not theories; no matter how fine the latter may be spun. It concerns itself with personal and property rights of a substantive character, and not with mere academic propositions, a decision as to which will remedy no evil and prevent no wrong.

(d) **Other well known articles of food, admittedly harmless, contain nitrites.**

The Court of Appeals, in their decision, state that the claimant proved "That nitrites in some or greater amounts are frequently present in potable water, bacon, ham, fruits and certain vegetables, and even in the saliva of both adults and children, and no evil result has been detected". Let us take the case of smoked products. Smoked ham, meat, tongue and

sausage are such universally known and used articles of food that we apprehend no one will attempt to question their legality under the law. The Government permits their transportation in interstate commerce without question. Yet, all of these products inevitably contain nitrite reacting material, and this substance is imparted to them by the smoking process. (See testimony of Government witnesses, Mitchell, Rec., p. 238, and Jones, Rec., p. 287; and of respondent's witness, Doctor Rockwood, Rec., p. 1597).

To condemn flour because it contains a minute amount of nitrite reacting material imparted to it by the bleaching process on the score of harmfulness, and merely by reason of the presence of a trace of the nitrite reacting material, is an act both unjustifiable and unreasonable in view of the age-long experience of the human race in consuming smoked meats containing this same nitrite reacting material, and without the suggestion of harm. There is no dispute whatever that nitrites are the same wherever found, or wherever produced. If, therefore, smoked meats containing it are harmless, bleached flour containing it is equally harmless.

IV.

THE COURT OF APPEALS COMMITTED NO ERROR IN SUSTAINING RESPONDENT'S CONTENTION THAT THERE WAS NO SUBSTANTIAL EVIDENCE TO SUPPORT THE CHARGE THAT THE SEIZED FLOUR WAS COLORED IN A MANNER WHEREBY DAMAGE OR INFERIORITY IS CONCEALED.

The Government made no case upon the allegations of paragraph (b) of the libel alleging adulteration,

which allegations were based upon the fourth subdivision of section 7 of the Act to the effect that a product is adulterated, "4th. If it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed."

The respondent assigned error in this respect that the Court erred in refusing to charge the jury as requested by it as follows: "There is no probative testimony or evidence in this case in support of the count or charge in the libel to the effect that the flour in question is mixed, colored, coated, or stained in a manner whereby damage or inferiority is concealed" (Rec., p. 2102).

The ruling of the trial court in refusing this instruction was the assigned error which the Court of Appeals had under consideration in its discussion of this issue. It was a court composed of learned and experienced judges, who, of course, had in mind the well-settled rule that in the consideration of such a case upon a writ of error the Court was without authority to weigh evidence. It is the province of the jury and the Court to determine questions of fact so that it at least is implied that when the Court delivered itself upon this subject it was confining itself to its well recognized and well-known jurisdiction. And in disposing of this contention the Court, in their opinion, in paragraph (5) say:

"The claim of adulteration in the fourth subdivision (of section 7 of the Act) presents a different question * * * we are not persuaded that by the bleaching process flour is so colored as to conceal inferiority or that by it flour is adulterated within the intent of subdivision 4 of section 7 of the Act."

Whiteness in flour and in the bread product of flour is desirable in and of itself. The whitened flour was produced in good faith by an improved and approved process. The taste and judgment of the user approved it. It cannot be wrong to challenge time's monopoly in the matter of bleaching flour.

In the case of *Naylord & Gerrard v. Alsop Process Company*, Vol. 168 Fed. Rep., page 911, *l. c.* 915, the Court, in referring to this feature of flour, said:

“Whiteness has long been a desirable quality in flour, and has been the controlling motive in the milling business. The whole system of bolting simply removes the darker portions of the wheat. Furthermore, as a matter of taste, whiteness in flour constitutes utility, within the patent law, as much as whiteness in sugar or yellowness in butter.”

We respectfully submit that the Court of Appeals committed no error in its decision, and that said decision should be affirmed.

EDWARD P. SMITH,
EDWARD L. SCARRITT,
BRUCE S. ELLIOTT,

Attorneys for Respondent.

C. J. SMYTH,
W. C. SCARRITT,

Of Counsel.

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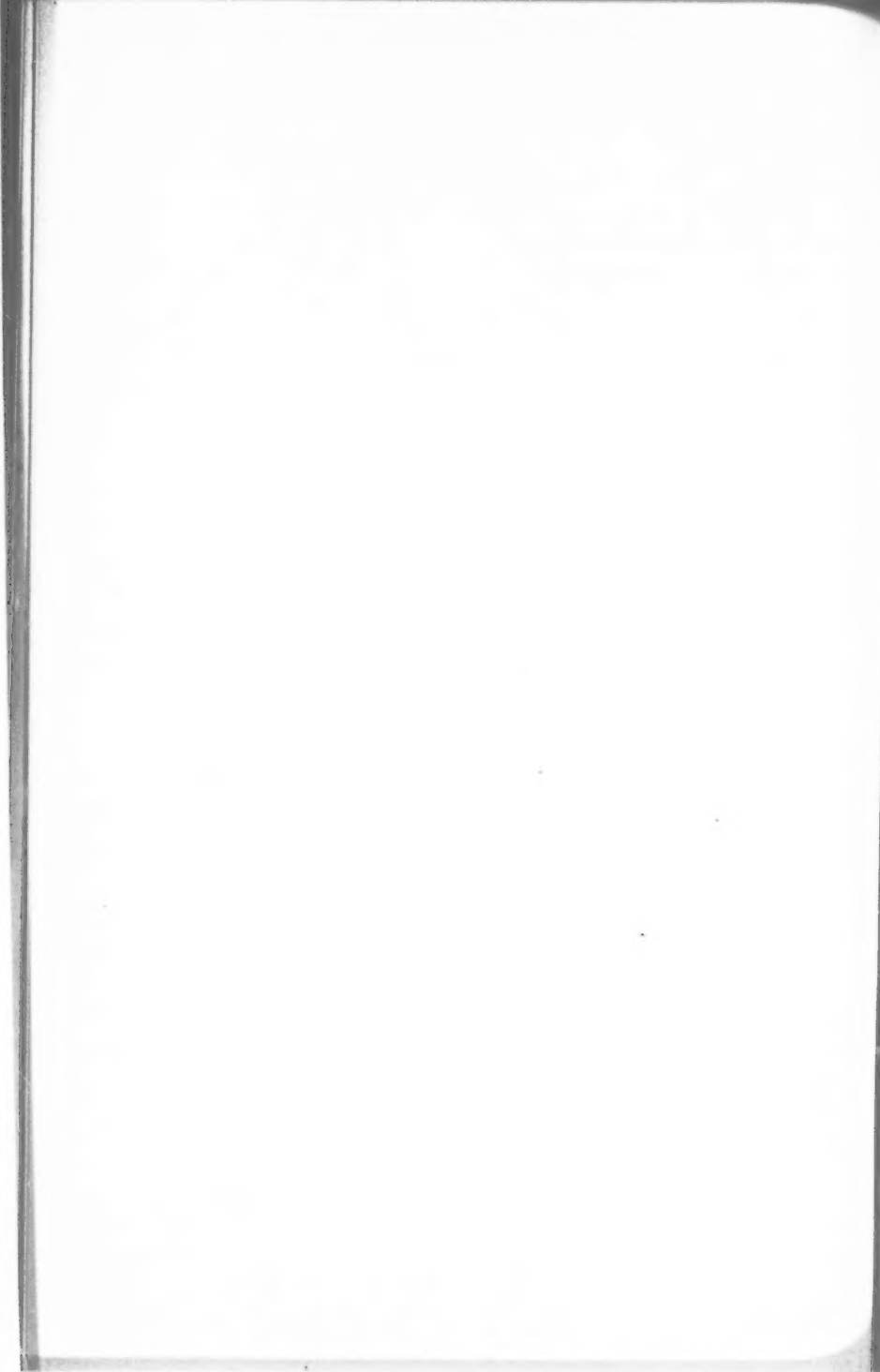
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SUPREME COURT
OF THE UNITED STATES.

UNITED STATES OF AMERICA,
Petitioner,

against

LEXINGTON MILL & ELEVATOR
COMPANY,
Claimant-Respondent.

**BRIEF OF RALPH S. ROUNDS AS
AMICUS CURIAE IN SUPPORT
OF THE CONTENTIONS OF THE
LEXINGTON MILL & ELEVATOR
COMPANY.**

Both parties to this cause have consented to the filing of this brief by the counsel for the H. J. Keith Company as *amicus curiae*.

The H. J. Keith Company is interested in the issues raised in this case for the reason that it is engaged in the packing of frozen and dried eggs and in their sale in interstate commerce, and that it is subject to the provisions of the Pure Food Law. Its business, and indeed the entire egg business, will be vitally affected by the construction to be given to subdivision "Sixth" of Section 7, which provides that food shall be condemned if it consists in whole or in part of a "decomposed" substance, and by the determination of the meaning of "decomposed" as used in this section—whether

it is to be read in its broad, scientific sense according to which all food is decomposed to some extent and must consequently be condemned, or whether it is limited to foods which are so far decomposed as to constitute degradation from existing standards, or whether, as we believe, "decomposed" means "unwholesomely decomposed."

These questions are similar to those which arise in this case regarding the construction of the words "poisonous or other added deleterious ingredient" occurring in subdivision "Fifth" of the same section, and the limitation which this Court shall give to the words last quoted will naturally also be given to the word "decomposed," for there is no obvious distinction between the two sections. If foods must be condemned because poisonous substances are added in harmless quantities, it will surely be held that technical decomposition, even though so slight as to be entirely harmless, will be ground for condemnation; and if, on the other hand, it be held that food cannot be condemned unless the added ingredient is harmful in the quantities actually used, it must also be held that "decomposed" means "unwholesomely decomposed." In this sense the egg business and all food business will be vitally affected by the decision of the Court in this case.

On behalf of the Keith Company, we endeavored to raise these questions of construction upon a writ of error brought by that Company, which was heard in this Court at the last term, but the Court decided in favor of the Company upon jurisdictional points without expressing itself upon the question of construction. This decision was reported as

443 Cans of Frozen Egg Product v. United States, 226 U. S. 172.

The Government recognizes that the decision in this case will be of great importance to the Keith Company and to all food business, for in his petition for a writ of certiorari in this case, the Attorney-General says:

"A decision on this paragraph of the statute will be of assistance also in construing other sections of the law. For instance, in *443 Cans of Frozen Egg Product v. United States* (226 U. S. 172), decided at this term on jurisdictional grounds, it was contended by plaintiff in error that food could not be condemned as filthy and decomposed under paragraph 6 of the section here involved unless it was so far gone as to be actually injurious to health."

The Lexington Mill & Elevator Company presents to the Court an able brief and we believe with that Company that the meaning of the section in question clearly applies only to food products which are rendered actually injurious by presence of poisonous or deleterious substances in harmful quantities.

We believe that these considerations should be decisive; and we file this brief only to supplement the arguments of the Lexington Company and to show that even if the Court should consider that the words of the section are ambiguous, it must nevertheless upon ordinary principles of construction decide the ambiguity in favor of the Lexington Company, and to show further that no limitation is admissible which is based on the idea of degradation from the existing standard of the food products in question.

POINTS.

If it be considered that the words in question are ambiguous, this court must construe those words and must give to them a meaning which shall make the statute reasonable and efficacious and thus accomplish the intent of Congress: and we submit that the sentence must be construed as meaning: "If it contain any added poisonous or other added deleterious ingredient which in the quantities used may render such article injurious to health."

Various principles of construction apply and these we set forth below.

The phrase must be construed strictly, as the Food Law is a penal statute.

This was so held in *United States v. Johnson*, 177 Fed. 313, 317 (affirmed 221 U. S. 488), where the Court said: "As this is a criminal statute, creating a new offense, it must be strictly construed and applied." This rule of statutory construction applies to a proceeding to forfeit goods as well as to a criminal prosecution, as was held with regard to this very statute in *United States v. Seventy-four Cases of Grape Juice*, 181 Fed. 629, 630."

U. S. v. Eighty-four Boxes of Sugar, 7 Pet. 453, 463.

U. S. v. A Lot of Silk Umbrellas, 12 Fed. 412.

U. S. v. 1150 1/2 Pounds of Celluloid, 82 Fed. 627.

The purpose of the Food Law is to prevent the sale of fraudulent and unhealthful products.

In this connection it is proper to consult the President's messages and the reports of Congressional committees.

Johnson v. Southern Pacific Co., 196 U. S. 1, 19.

Binns v. United States, 194 U. S. 486, 495.

The Delaware, 161 U. S. 459, 472.

Oceanic Navigation Co. v. Stranahan, 214 U. S. 320, 333.

The President's message to the First Session of the 59th Congress urging this Act says at page 44:

"Such a law would protect legitimate manufacture and commerce and would tend to secure the *health* and welfare of the consuming public. Traffic in food stuffs which have been debased or adulterated *so as to injure health or deceive purchasers* should be forbidden."

Following the President's recommendation, a bill was introduced in Congress which subsequently became the Food and Drugs Act, and in reporting the bill, the House Committee made a careful statement of its scope and object (see House Committee Report No. 2118, 59th Congress, First Session).

"One of the principal objects of the bill is to prohibit in the manufacture of foods intended for interstate commerce the addition of foreign substances poisonous or *deleterious to health*" (p. 6).

"We believe every one recognizes the necessity of governmental regulations to prevent the sale of *adulterated, poisonous, or other injurious* food products. * * * In so far as these (mixtures, adulterants, and preservatives) are harmless, and are not used as a fraud upon the purchaser or user they may be of great benefit, but the ingenuity of man in providing either the adulteration or the preservation of food products by the use of substances which are injurious and harmful to the human system must be met by governmental restraint" (p. 8).

Senator Heyburn, a member of the Senate Committee, which reported the bill, said in opening the debate upon it:

"It has seemed to the committee in presenting this bill that the first consideration was to prevent the manufacture of articles that were deleterious to health and to prevent the combination of articles that would deceive and defraud the public. That was the primary object of the committee in preparing this bill" (Vol. 40, Congressional Record, p. 894).

The purpose and public policy of the law is clearly shown by its title, which is as follows:

"An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes."

As "adulterated" is obviously used in the ordinary sense, we have two words in the title which show its character as a statute for the prevention of frauds, and two words, "poisonous" and "deleterious," which cover the health aspect of the statute and show that its purpose was to protect the public health.

The courts have uniformly held that the purpose of the law is to prevent fraud and protect the public health.

United States v. Morgan, 222 U. S. 274, 281, speaks of the food law as "a law passed in the interest of the public health."

United States v. Johnson, 177 Fed. 313, 315 (affirmed 221 U. S. 488).

"The very title of the Act indicates its scope and purport. Its underlying purpose was to protect the public health against imposition upon the users of food, drugs, and

medicines which were adulterated, misbranded, poisonous, or deleterious."

United States v. One Car Load of Corno Horse & Mule Food, 188 Fed. 453, 463.

"The great object of the statute is to prevent injury to health and deception by putting words or devices on the label which may naturally lead the purchaser to believe that he is getting one thing when in reality he is getting another."

United States v. Five Boxes of Asafoetida, 181 Fed. 561, 565:

"The purpose of this act is to conserve the public health by preventing interstate commerce in poisonous or deleterious food and drugs."

United States v. 1950 Boxes of Macaroni, 181 Fed. 427:

"It is the duty of the Court to give the Act a fair and reasonable construction for the accomplishment of its object. That object is the exclusion from interstate commerce of food products so adulterated as to endanger health."

United States v. Buffalo Cold Storage Co., 179 Fed. 865, 866:

"Congress by its enactment intended to promote honesty and fair dealing in trade and secure to the public pure and wholesome food and drugs, and manifestly there must be a reasonable construction of the Act to carry out the intention of Congress in this regard."

French Silver Dragee Co. v. United States, 179 Fed. 824, Circuit Court of Appeals, Second Circuit, where the Court, speaking by Judge NOYES, says:

"And, examining the particular section now in question (Section 7), we find the purpose all through it to protect the public from deceit and injury. Drugs are declared to be adulterated if their strength or purity fall below certain standards. The intent to prevent both deceit and injury are here apparent. So food is deemed to be adulterated:

"(1) If its quality or strength is reduced by the mixture of other substances;

"(2) If one substance has been substituted for another;

"(3) If a valuable ingredient has been abstracted;

"(4) If it is mixed or colored so that damage or inferiority is concealed;

"(5) If poisonous ingredients or ingredients making the article injurious to health are added;

"(6) If the article consists of decomposed or putrid animal or vegetable substances.

"The obvious purpose of provisions (1), (2), (3), and (4) is to protect the public from deceit and false pretenses; of provisions (5) and (6), from injury to health.

"Other sections of the Act also indicate the same objects. The terms 'false,' 'misleading,' 'deceive,' 'poisonous,' 'deleterious,' appear in many places. Indeed, a careful examination of the whole Act clearly shows that its object is, as already indicated:

"(1) To prevent deceit and false pretenses in the sale of food and drugs;

"(2) To *safeguard the public health.*

"Stated in another way, we think that the history of the Act, the objects to be accomplished by it, and the language of all its provisions require that it should be so interpreted that in the case of confectionery, as in the cases of food and drugs, the Government should establish, with respect to products not specifically named, that they either deceive, or are calculated to deceive, the public or are detrimental to health; and,

as no proof was offered in this case tending to show that the confectionery in question was either deceptive or injurious, the defendant was improperly convicted."

Ex parte Kohler, 74 Cal. 38, 42, is an interesting case. The Court held, contrary to the wording of the statute, that a statute requiring a label was not intended to apply to *pure* wines nor to restrict the sale of pure wines, reaching this conclusion apparently because such a restriction would have no relation to the public health.

"All legislation directed against the adulteration and simulation of articles of food and drink is aimed at a common object—the preservation of the public health. The Court will take judicial notice of the evils preceding such legislation, and the mischiefs intended to be prevented thereby, the character and importance of the interests of the State which may be affected thereby, and the usual course of business. A knowledge of these matters is often necessary to a full and fair understanding of the force and effect of the law, and is a valuable help in ascertaining its true intent and meaning."

The court is bound to place upon the phrase a limitation which will promote the health purpose of the Food Law and which will go no further in the condemnation of food than is required for that health purpose; the limitation which is based on quantity as well as quality and by which the section condemns only articles actually injurious to health is the only limitation which fully and exactly serves the purpose of the law and nothing more.

It is possible that Congress could by words absolutely clear beyond question have condemned all foods containing poisonous or deleterious ingredi-

ents in any quantity, but every presumption will be against such a construction. And when this Court is, because of the ambiguity of the section in question, called upon to declare the meaning of the section, it must adopt a construction which will clearly advance the purpose of the law and which has a clear relation to the public health. With the Court there is no room for speculation or imagination or caprice, and it is not free to adopt any construction except one which tends to protect the public health and does not go beyond the health purpose of the law.

Obviously the purpose of the statute is served and fully and exactly served by excluding all substances which contain poisonous or deleterious ingredients in harmful quantities and by excluding nothing more. This construction goes as far as the purpose of the law requires and no further.

We shall show in the following points that all the other considerations and principles of construction lead to the same conclusion.

The same result is reached if the phrase is interpreted in the light of the common law which made it a crime to sell unwholesome food.

Where the purpose of a statute is in general the same as that of the common law, it will be presumed that the Legislature intended to re-enact in statute form the common law rules. This doctrine is well established in the federal courts, even where there is no antecedent federal common law upon the subject.

Standard Oil Co. v. United States, 221 U. S. 1, 59, 60, is a striking example. Even though there was no federal common law against monopolies, this Court construed the anti-trust law in the light of the old English and American common law and limited the general words of the statute so as to

carry out the principles and effectuate the purposes of the common law.

United States v. Carll, 105 U. S. 611. A statute of the United States made it a crime for a person with intent to defraud to utter any forged obligation of the United States. Under an indictment couched in the words of the statute, the defendant was tried and convicted, but the Supreme Court reversed the conviction notwithstanding the general words of the statute, saying:

"The language of the statute on which this indictment is founded, includes the case of *every* person who, with intent to defraud, utters any forged obligation of the United States. But the offense at which it is aimed is similar to the common law offense of uttering a forged or counterfeit bill. In this case, as in that, knowledge that the instrument is forged and counterfeited is essential to make out the crime; and an uttering, with intent to defraud, of an instrument in fact counterfeit, but supposed by the defendant to be genuine, though within the words of the statute, would not be within its meaning and object."

There was no federal common law of forgery antecedent to this statutory crime, but the Court limited the words of the statute by including in the definition of the crime the element of guilty knowledge and thereby making the statutory crime similar to the common law crime as existing in England and in the States of this country.

Kepner v. United States, 195 U. S. 100, 125, 132, in which the Court was called upon to construe the words "no person for the same offense shall be twice put in jeopardy of punishment" as included in the Act of Congress relating to the Philippine Islands. It was contended that this provision should be interpreted in view of the Spanish system

of law prevailing in the Philippine Islands, by which the Government was allowed to appeal in the event of an acquittal. But the Court rejected this rule of interpretation and interpreted the phrase according to the rules of the old English common law, and held that the Philippine defendant had the same rights as those granted to Englishmen by the English common law.

"In ascertaining the meaning of the phrase taken from the bill of rights it must be construed with reference to the common law from which it was taken."

"We find a vast number of adjudications of the highest judicial tribunals of the different states and many of the federal courts to the effect that no such retrial is authorized by the common law, and is directly interdicted by the Constitution of the United States, and also of most of the several states."

U. S. v. Sanges, 144 U. S. 310, 311. The defendant was indicted for violating the constitutional rights of a third party, and a demurrer to the indictment was sustained. The Government took a writ of error under a statute declaring that "writs of error may be taken from the District Courts direct to the Supreme Court in any case that involves the construction of the Constitution of the United States"; but although the Supreme Court recognized that the construction of the Constitution was involved, it dismissed the writ of error, holding that, although the constitutional provisions of double jeopardy did not apply and although there was no statute or rule of federal law qualifying the broad statute above quoted, nevertheless the writ of error should be denied because of the rule which prevailed at the English common law that no one should be vexed twice for the same offense. The Court says:

"This statute, like all Acts of Congress, and even the Constitution itself, is to be read in the light of the common law, from which our system of jurisprudence is derived."

This decision is extremely interesting because the Court held that the case was not covered by the constitutional provision, but only by the common law, and the Court thus read into the Judiciary Act a qualification found in the old English common law.

U. S. v. Wong Kim Ark, 169 U. S. 649, 653. This is a case where this Court determined the meaning of the Constitution by consideration of the old English law, saying:

"In construing any act of legislation, whether a statute enacted by the Legislature, or a constitution established by the people as the supreme law of the land, regard is to be had, not only to all parts of the act itself, and of any former act of the same law-making power, of which the act in question is an amendment; but also to the condition, and to the history, of the law as previously existing, and in the light of which the new act must be read and interpreted."

Moore v. U. S., 91 U. S. 270, 274.

"The language of the Constitution and of many acts of Congress could not be understood without reference to the common law."

8 *Cyc.*, 386.

"Where an act of Congress punishes an offense without defining it otherwise than by giving it a common-law designation, such as murder, larceny, robbery, etc., the courts look to the common law for the definition and elements of the offense."

At the common law, both in England

and in the several States, it was a criminal offense to offer for sale unwholesome food or food or drink to which poisonous or deleterious substances had been added to such an extent as to make the article injurious to health—so that the health provisions of the Food Law cover the same general ground as those of the common law. Unwholesomeness was a necessary element of the offense at common law and it must be held to be a necessary element under the section in question of the definition of the words used in the present statute.

Bishop on Criminal Law (8th Ed.), Par. 491:

“It is indictable at the common law to make unwholesome a water supply or provisions meant for use in the community, or to sell for such use food injurious to the health. Even the mere exposure in an open market for sale, of things thus injurious, or the sending of them there for the purpose, constitutes the complete offense at common law. And the common carrier who brings them to market, with knowledge, is indictable.”

19 Cyc., 1086—*Note 3*:

“The selling of unwholesome provisions or the mixture of poisonous ingredients in the food or drink of another to such an extent as to impair the health of any individual receiving them is punishable by indictment at common law.”

State v. Norton (1841), 24 N. C. 40.

Defendant was indicted and convicted for knowingly selling unwholesome provisions. Upon appeal a new trial was ordered upon the ground as stated in the following opinion by the Court:

“Knowingly selling unwholesome provisions is a misdemeanor at the common law.

The Judge charged the jury that it was not necessary that the meat sold should be such as to produce sickness or death, when eaten, if it was in such a state as to render it unfit to be eaten, according to the usages of a decent and christian people. We think that the charge was too broad. The gist of the offense consists in the knowingly selling for lucre, provisions, which may be injurious to the health of those who are to consume them. To support this indictment, the meat sold must have been in such a state, that, if eaten, it would, by its noxious, unwholesome, and deleterious quality, have affected the health of those who were to have consumed it."

Goodrich v. The People, 19 N. Y. 574, 578:

The defendant was indicted and convicted under a common law indictment for selling unwholesome provisions. In sustaining the verdict and commenting upon the charge to the jury, the Court of Appeals said:

"As I understand the evidence of the physicians, the eating of diseased meat, although it produces no obvious ill effects, does in reality injure the health of those who partake of it. The jury must have understood from the charge that they could not convict the defendant unless the meat was in such a state as to injuriously affect the health of those who ate it; but that it was not necessary to his conviction that the injury should be apparent to the senses, if the medical testimony established the fact that it did or would injure the health of those who partook of it, provided the defendant knew the cow was diseased from which the meat was taken."

State v. Buckman (1836), 8 N. H. 203, 205.

Defendant was indicted and convicted for throwing into a well the carcass of an animal whereby

the water became greatly corrupted, unwholesome and poisonous. The Court sustained the conviction on the ground that it was an indictable offense at common law:

"The selling of unwholesome provisions, or the mixture of poisonous ingredients in food or drink designed for any individual, are indictable offenses at common law, whether done through malice or a desire of gain merely. * * * Furnishing such provisions in any manner, or causing such unwholesome matter to be used, constitutes the offense. There can be no question but the mixture of poisonous ingredients with the food or drink of another to such an extent as to impair the health of any individual receiving them, is punishable by indictment at common law; and water infected with the noisome particles and effluvia of a dead animal thrown into it, must partake of a character so poisonous and unwholesome as properly to come within this class of offences."

State v. Smith (1824), 10 N. C. 378.

"It is a misdemeanor at common law knowingly to give any person injurious food to eat, whether the defendant be excited by malice or a desire of gain. It seems upon the whole, that the public health, whether affected through the medium of unwholesome food, or poisoning the atmosphere, or introducing infectious diseases, is anxiously guarded by the common law."

A civil action for damages could also at the common law be brought by the vendee against the vendor of unwholesome provisions. See 21 L. R. A. 140, and cases cited in the note.

The health provisions of the food law and of the common law regarding the sale of unwholesome food are thus closely parallel, and just as in the

Carll case, above cited, this Court narrowed the general words by introducing into the definition of the statutory crime the element of guilty knowledge of the counterfeit so as to conform the statutory crime to the common law crime, so in our case this Court should narrow the general words by introducing into the definition of the crime of forfeiture the element of unwholesomeness, so as to conform to the common law offense.

To omit the qualification of wholesomeness or injury to health would be to condemn and destroy wholesome food. Congress did not intend any such result. Statutes will not be construed to condemn wholesome food if any other construction is possible.

Whatever saves and makes available perishable food, increases the food supply of the nation and diminishes the cost of living, and thus directly benefits the public, and it also safeguards the public health, for one who is well nourished has the power to resist disease.

Obviously every food law must affect the food supply and the cost of living and must be deemed to have been passed, and must be interpreted, in view of the strong public policy in favor of conservation of food; and a food law whose wording is doubtful must be construed, if possible, so as not to apply to wholesome food and so as to favor food conservation. An example of such construction is furnished by *Ex parte Kohler*, 74 Cal. 38, above mentioned.

This court has in many notable instances limited general words of statutes by construction.

Standard Oil Co. v. United States, 221 U. S. 1, 59, 60, 68, is in many respects similar to ours. There was a remedial statute passed for the protection of the public, and the Legislature, in order

to, fully accomplish the purpose of the statute, used words which in their ordinary sense would condemn all business transactions. But this Court, recognizing that construction was necessary, considered the purposes of the act and the prior legislation and held that the broad general words were subject to reasonable qualifications.

American Security Co. v. District of Columbia, 224 U. S. 491, 494, 495, limited the general phrase "any law of the United States" to mean only those laws having a general application throughout the United States.

"Of course, there is no doubt that the special act of Congress was in one sense a law of the United States. * * * But * * * some reasons for strict construction apply here. * * * If, then, the words have the meaning given them by the applicants, the appellate jurisdiction of this Court has been largely and irrationally increased. We believe Congress meant no such result. A well-known example of construing a statute not to include a case that indisputably was within its literal meaning, but was believed not to be within the aim of Congress, is *Church of the Holy Trinity v. United States*, 143 U. S. 457."

Holy Trinity Church v. United States, 143 U. S. 457. A statute provided broadly that "it shall be unlawful for any person in any manner whatsoever, to assist or encourage the migration of any foreigner into the United States under contract made previous to the migration of such foreigner to perform labor or service of any kind in the United States." The church contracted with a clergyman in England to enter its service as rector and it was prosecuted and convicted under the statute. In reversing this judgment, Mr. Justice HARLAN says at pages 458 and 459:

"It must be conceded that the act of the corporation is within the letter of this section, for the relation of rector to his church is one of service, and implies labor on the one side with compensation on the other.
* * *

"While there is great force to this reasoning, we cannot think Congress intended to denounce with penalties a transaction like that in the present case. It is a familiar rule that a thing may be within the letter of the statute and yet not within the statute, because not within its spirit, nor within the intention of its makers. This has been often asserted, and the reports are full of cases illustrating its application. This is not the substitution of the will of the Judge for that of the legislator, for frequently words of general meaning are used in a statute, words broad enough to include an act in question, and yet a consideration of the whole legislation, or of the circumstances surrounding its enactment, or of the absurd results which follow from giving such broad meaning to the words, makes it unreasonable to believe that the legislator intended to include the particular act."

The opinion concludes as follows:

"The construction invoked cannot be accepted as correct. It is a case where there was presented a definite evil, in view of which the Legislature used general terms with the purpose of reaching all phases of that evil, and thereafter, unexpectedly, it is developed that the general language thus employed is broad enough to reach cases and acts which the whole history and life of the country affirm could not have been intentionally legislated against. *It is the duty of the courts under those circumstances, to say that, however broad the language of the statute may be, the act, although within the letter, is not within the intention of the*

Legislature, and therefore cannot be within the statute."

Lau Ow Bew v. United States, 144 U. S. 47, 61.

The statute provided that "every Chinese person, other than a laborer" should before being admitted into this country present a certain certificate. The Court held that this did not include a Chinese merchant who had been domiciled for seventeen years in the United States, and the Court quotes with approval the following language:

"Neither the letter nor the spirit of the act calls for a construction imputing to Congress the exaction of a condition so unreasonable. * * * All laws are to be so construed as to avoid an unjust or an absurd conclusion; and general terms are to be so limited in their application as not to lead to injustice, oppression or an absurd consequence."

Other important cases upholding the same principles are the following:

United States v. Kirby, 74 U. S. 482.

Price v. Forrest, 173 U. S. 410.

Chesapeake Company v. Manning, 186 U. S. 238.

United States v. Laws, 163 U. S. 258.

Oates v. National Bank, 100 U. S. 239, 244.

United States v. Goldenberg, 168 U. S. 95, 102.

McKee v. United States, 164 U. S. 287, 293.

Hawaii v. Mankichi, 190 U. S. 197.

It may be urged that the phrase should be limited, in its application, to cases where the addition of the poisonous ingredient causes degradation from standard. Such a construction is inadmissible.

No standards are defined in the statute, nor is any official authorized to fix standards. The only possible standards on which the degradation-from-standard construction could be based are those which are accepted by the "man in the street," and according to this construction the law would be obliged to measure down or up to his crude, unscientific and shifting notions. So construed the statute would serve no useful purpose.

Such a construction is not required or justified by the purpose of the statute, which is to prevent fraud and protect the public health. If it is construed to depend upon existing standards, this section would have no efficacy for preventing fraud and little efficacy for protecting the public health because the popular standards are not health standards in any accurate or useful sense. In the case of benzoate of soda, for instance, the average man either disregards its presence or he considers that its addition puts the food into the class of bad foods, but certainly he does not know whether or not benzoate of soda makes the food unwholesome, and to condemn food according to his notion is not to protect the public health. Such a construction would indeed thwart the health purpose of the statute; for the rule must work both ways, and if we can only condemn food which has fallen below the common standards, we cannot (except to the limited extent permissible under the common law) condemn anything which is approved by the common judgment, even though it should be scientifically demonstrated to be highly dangerous to health.

Such a construction would tempt the public authorities to discriminate between the varying popular standards and to insist upon the higher standards and to condemn arbitrarily the vast quantity of lower grade, but nevertheless wholesome, foods, and thus to increase the cost of living and the bur-

dens of the poor. They would argue that as no standards have been fixed, it must be intended that the officials should constitute themselves a sumptuary hierarchy and decide what we should be allowed to eat. Doubtless the courts would restrain such usurpation, but the courts travel slowly and the danger is great.

Under such construction everything would be decided according to the popular standards existing when the law was passed June 30, 1906, and these standards would soon prove to be an intolerable Procrustean bed. Or if Congress intended that the Court should in each case apply the standards existing when the case should be tried, the meaning of this great remedial statute must continually change as public opinion veers.

Lastly, such a construction would make this section of the law impossible of uniform enforcement, because there are no general or uniform standards of foods which could be the basis of this "degradation from standard" construction. The popular food standards are a matter of taste and tradition and there can be no general agreement on such matters. Different sections of the country and different classes of society have varying standards, and, indeed, the standards of one year do not agree with those of the next, for the taste of the people varies in foods as in fashions. No average of the varying standards can be constructed, for there are no sufficient data, and any such average, if it could be made, would be as vague as a composite photograph.

There is undoubtedly a rough popular distinction between "good food" and "bad food," and this distinction runs to unwholesomeness, for what a man considers to be bad food is bad for him and his digestion and his health in a very real sense. But this distinction is of little use or interest for

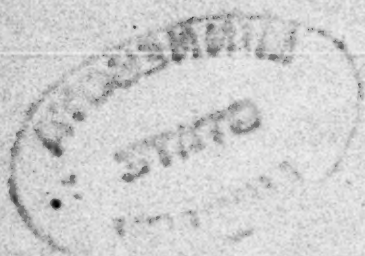
the purposes of the Pure Food Law; for there can be no general agreement as to just what is good and just what is bad, and there is no popular definition of goodness or badness with respect to foods, and to make the law effective the courts must have a definition and a rule. Indeed this provision of the law would be useless and unnecessary if it merely condemned what the "man in the street" considers bad, for food known to be bad he will reject quite irrespective of courts or congress, and any food in which any material degradation or inferiority is purposely concealed is adequately dealt with under other provisions of the statute which are framed for the prevention of fraud. Unless subdivision fifth protects the people against bad food which (although properly labeled) they do not recognize as bad, it has no use or purpose. There is a vast debatable ground between food which is universally considered as good and that which is universally recognized as bad, and it is within this debatable ground that the people need protection and yet within this debatable ground there are no definite or useful standards which are generally accepted. If the "degradation from standard" construction should be adopted, the Department of Agriculture and the courts would usually be found wandering within this debatable ground without a guide; in dealing with entirely fresh or entirely rotten foods (where the public needs no help or protection) they would have no difficulty, but in all intermediate cases their difficulties would be insuperable.

LASTLY.

We submit that the words in question must be construed to mean: "If it contain any added poisonous or other deleterious ingredient which in the quantities used may render such article injurious to health."

Respectfully submitted,

RALPH S. ROUNDS,
of Counsel.



**UNITED STATES OF AMERICA v. LEXINGTON
MILL & ELEVATOR COMPANY.**

**CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE
EIGHTH CIRCUIT.**

No. 548. Argued January 5, 1914.—Decided February 24, 1914.

The primary purpose of Congress in enacting the Food and Drugs Act of 1906 was to prevent injury to the public health by the sale and transportation in interstate commerce of misbranded and adulterated food.

As against adulteration the statute was intended to protect the public health from possible injury by adding to articles of food consumption poisonous and deleterious substances which might render such articles injurious to health.

Where such a purpose has been effected by plain and unambiguous language by an act within the power of Congress, the only duty of the courts is to give the act effect according to its terms.

The inhibition in subdivision 5 of § 7 of the Food and Drugs Act of 1906 against the addition of any poisonous or other added deleterious ingredient which may render an article of food injurious to health is definitely limited to the particular class of adulteration specified, and in order to condemn the article under subdivision 5 it is incumbent upon the Government to establish that the added substance may render the article injurious to health.

In subdivision 5 of § 7 of the Food and Drugs Act of 1906 the word "may" is used in its ordinary and usual signification; and if an article of food may not by the addition of a small amount of poisonous substance by any possibility injure the health of any consumer, it may not be condemned under this subdivision of the act.

202 Fed. Rep. 615, affirmed.

THE facts, which involve the construction of subdivi-

sions 4 and 5 of § 7 of the Food and Drugs Act of 1906, are stated in the opinion.

Mr. Attorney General McReynolds, with whom Mr. Francis G. Caffey was on the brief, for the United States:

The seized flour was adulterated within subd. 5, § 7 of the Food and Drugs Act. *French Silver Dragee Co. v. United States*, 179 Fed. Rep. 824; *United States v. 1,950 Boxes of Macaroni*, 181 Fed. Rep. 427; *United States v. Mayfield*, 177 Fed. Rep. 765; *United States v. Rosebrock & Co.*, Notice of Judgment, 825; *United States v. Koca Nola Co.*, Notice of Judgment, 202; *Friend v. Matt*, 68 J. P. 589.

The Circuit Court of Appeals erred in reviewing the weight of evidence as to whether the flour was adulterated within subd. 4 of § 7 of the act.

The bleaching conceals newness and imparts color of better grade and inferior flour is made to resemble patent.

Flour milled from inferior wheat is made to appear as if milled from first-quality.

The Circuit Court of Appeals had no power to review the jury's findings. *Behn v. Campbell*, 205 U. S. 403; *Lancaster v. Collins*, 115 U. S. 222; *Chicago & North Western Ry. Co. v. Ohle*, 117 U. S. 123.

The Court of Appeals was correct in holding that there was no error in submitting to the jury the charges of adulteration under subd. 1 of § 7 of the act.

The Food and Drugs Act is constitutional. *Hipolite Egg Co. v. United States*, 220 U. S. 45; *Booth v. Illinois*, 184 U. S. 425; *Otis v. Parker*, 187 U. S. 606; *Powell v. Pennsylvania*, 127 U. S. 678; *Buttfield v. Stranahan*, 192 U. S. 470; *United States v. Johnson*, 221 U. S. 488; *Shawnee Milling Co. v. Temple*, 179 Fed. Rep. 517; *United States v. 74 Cases Grape Juice*, 181 Fed. Rep. 629; *United States v. 480 Sacks of Flour*, 180 Fed. Rep. 518; *United States v.*

Heinle Specialty Co., 175 Fed. Rep. 299; *United States v. 100 Cases of Apples*, 179 Fed. Rep. 985.

Mr. Edward P. Smith and Mr. Bruce S. Elliott, with whom Mr. Edward L. Scarritt, Mr. C. J. Smyth and Mr. W. C. Scarritt were on the brief, for respondent:

Congress possesses no police power, and the Food and Drugs Act, if sustained at all, must be sustained on the ground that it is a regulation of commerce between the States. *Crutcher v. Kentucky*, 141 U. S. 47; *Lawton v. Steele*, 152 U. S. 133; *Gibbons v. Ogden*, 9 Wheat. 1; *Hannibal & St. Joe R. R. Co. v. Hewson*, 95 U. S. 465; *Wilkinson v. Rahrer*, 140 U. S. 545.

The power to make the ordinary regulations of police remains with the individual States and cannot be assumed by the National Government, and in this respect it is not interfered with by the Fourteenth Amendment. *Mugler v. Kansas*, 123 U. S. 623; *Plumley v. Massachusetts*, 155 U. S. 461; *New Orleans Gas Co. v. Louisiana Light Co.*, 115 U. S. 650; *United States v. Knight*, 156 U. S. 1; *Int. Com. Comm. v. Brimson*, 154 U. S. 447; *Employers' Liability Case*, 207 U. S. 463.

The Food and Drugs Act is to be regarded as an act to regulate commerce, and the court erred in charging the jury that the Government need not prove that the flour in question, or foodstuffs made by the use of it, would injure the health of the consumer; that it is the character—not the quantity—of the added substance which is to determine this case.

Congress never intended the statute in question should be construed as the trial court construed it in this instruction to the jury.

In the passage of this act Congress intended the words of this section to be used as above indicated, in their usual and ordinary sense. It was never intended by Congress that this act should ever be construed to mean that the

useful and harmless property of a citizen should, by the methods providing for the prevention of the sale of harmful and injurious foods, be confiscated, condemned and destroyed. This would be contrary to the policy and spirit of our laws and the fundamental principles of our government. *Church of Holy Trinity v. United States*, 143 U. S. 457; *United States v. C. & N. W. Ry. Co.*, 157 Fed. Rep. 618; *Binns v. United States*, 194 U. S. 495; *Blake v. Natl. City Bank*, 23 Wall. 307; *Wadsworth v. Boysen*, 148 Fed. Rep. 771.

The language used in the act in question is not susceptible of the interpretation placed thereon by the trial court. *Montclam v. Ramsdell*, 107 U. S. 147; *Postmaster General v. Early*, 6 L. C. P. 147; 12 Wheat. 136.

In order to bring an article of food within its condemnation, it must be shown that its consumption would injure the health of the consumer.

Giving to all the words of the statute, therefore, their plain, usual and ordinary meaning, it is plain that the trial court erroneously construed it. *French Silver Dragee Co. v. United States*, 179 Fed. Rep. 824.

The construction contended for has been sustained by the English courts in construing a similar statute, 38 and 39 Vict., c. 63, § 3. *Friend v. Mapp*, 68 J. P. 589; *Hull v. Horsnell*, 68 J. P. 591.

The act as construed by the trial court is arbitrary and an unreasonable interference with the rights of property. *Jew Ho v. Williamson*, 103 Fed. Rep. 10.

If the flour did not contain anything which might render it injurious to health, it is wholly without the power of Congress or any other branch of the Government to exclude it from the channels of commerce or to prohibit its sale.

Congress has not undertaken to exclude flour such as this from the markets. *Congress only attempted to exclude from the markets such flour as may be injurious to

health. The trial court by its instructions forced the condemnation and destruction of this flour, even though it contained nothing which would in any wise render it injurious to health. This is not the exercise of a legislative power, but is an arbitrary and illegal taking of property which this court has in many cases condemned. *Powell v. Pennsylvania*, 127 U. S. 678; *Mugler v. Kansas*, 123 U. S. 623; *Schollenberger v. Pennsylvania*, 171 U. S. 1; *Collins v. New Hampshire*, 171 U. S. 30; *Lochner v. New York*, 198 U. S. 45.

There is no reasonable foundation in this case for holding that it is necessary or appropriate to safeguard the public health or the health of the individuals to destroy and condemn the flour in question. *State v. Layton*, 160 Missouri, 474; *State v. Addington*, 12 Mo. App. 219; *State v. Fisher*, 52 Missouri, 174; *Toledo v. Jacksonville*, 67 Illinois, 37; *River Rendering Co. v. Behr*, 77 Missouri, 9; *McConnell v. McKillipp*, 71 Nebraska, 712.

The interpretation placed upon the act by the Circuit Court of Appeals is reasonable, gives effect to all the language contained in the act, and is the only interpretation under which its constitutionality can be sustained. *Knowlton v. Moore*, 178 U. S. 41; *Collins v. New Hampshire*, 171 U. S. 30; *Interstate Drainage Co. v. Commissioners*, 158 Rep. Fed. 270.

The statute in question is a penal statute, and as to the rule applicable to the construction of such statutes see *Martin v. United States*, 168 Fed. Rep. 198, 201; *United States v. Willberger*, 5 Wheat. 77; *United States v. Germaine*, 99 U. S. 508; *Field v. United States*, 137 Fed. Rep. 6; *United States v. Lake*, 129 Fed. Rep. 499.

The intent of Congress, as indicated by the title of the act, was to make the condition of the food the determining factor of adulteration.

The principle of construction adopted by the Circuit Court of Appeals is sustained in numerous decisions. See

Maillard v. Lawrence, 16 How. 251; *Levy v. M'Cartee*, 6 Pet. 110; *Parsons v. Hunter*, 2 Sumner, 422; *Bernier v. Bernier*, 147 U. S. 246; *Washington Market Co. v. Hoffman*, 101 U. S. 115; *United States v. Fisher*, 109 U. S. 145; *Lake Superior Canal Co. v. Cunningham*, 155 U. S. 380; *Rhodes v. Iowa*, 170 U. S. 423; *Lake County v. Rollins*, 130 U. S. 670; *Hamilton v. Rathbone*, 175 U. S. 421; *Swarts v. Seigel*, 117 Fed. Rep. 18; *Glover v. United States*, 164 U. S. 298; *Harless v. United States (C. C. A.)*, 88 Fed. Rep. 102.

The construction of the law contended for by the Government would render contraband many admittedly harmless articles of food. Other well known articles of food, admittedly harmless, contain nitrites.

The Circuit Court of Appeals committed no error in sustaining respondent's contention that there was no substantial evidence to support the charge that the seized flour was colored in a manner whereby damage or inferiority is concealed. *Naylord & Gerrard v. Alsop Process Co.*, 168 Fed. Rep. 911, 915.

By leave of court, *Mr. Ralph S. Rounds* filed a brief as *amicus curiæ*.

MR. JUSTICE DAY delivered the opinion of the court.

The petitioner, the United States of America, proceeding under § 10 of the Food and Drugs Act (June 30, 1906, c. 3915, 34 Stat. 768, 771), by libel filed in the District Court of the United States for the Western District of Missouri, sought to seize and condemn 625 sacks of flour in the possession of one Terry, which had been shipped from Lexington, Nebraska, to Castle, Missouri, and which remained in original, unbroken packages. The judgment of the District Court, upon verdict, in favor of the Government, was reversed by the Circuit Court of Appeals for the Eighth Circuit (202 Fed. Rep. 615), and this writ of certiorari is to review the judgment of that court.

The amended libel charged that the flour had been treated by the "Alsop Process," so called, by which nitrogen peroxide gas, generated by electricity, was mixed with atmospheric air and the mixture then brought in contact with the flour, and that it was thereby adulterated under the fourth and fifth subdivisions of § 7 of the act, namely, (1) in that the flour had been mixed, colored and stained in a manner whereby damage and inferiority were concealed and the flour given the appearance of a better grade of flour than it really was, and (2) in that the flour had been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, nitrogen peroxide, nitrous acid, nitric acid and other poisonous and deleterious substances which might render the flour injurious to health. The libel also charged that the flour was adulterated under the first subdivision of § 7, and was misbranded; but the Government does not urge these features of the case here. The verdict was broad enough to cover the charge under the first subdivision of § 7, but in the view we take of the case as to the instruction of the court under subdivision 5 it need not be noticed.

The Lexington Mill & Elevator Company, the respondent herein, appeared, claiming the flour, and answered the libel, admitting that the flour had been treated by the Alsop Process, but denying that it had been adulterated and attacking the constitutionality of the act.

A special verdict to the effect that the flour was adulterated was returned and judgment of condemnation entered. The case was taken to the Circuit Court of Appeals upon writ of error. The respondent contended that, among other errors, the instructions of the trial court as to adulteration were erroneous and that the act was unconstitutional. The Circuit Court of Appeals held that the testimony was insufficient to show that by the

bleaching process the flour was so colored as to conceal inferiority and was thereby adulterated, within the provisions of subdivision 4. That court also held—and this holding gives rise to the principal controversy here—that the trial court erred in instructing the jury that the addition of a poisonous substance, in any quantity, would adulterate the article, for the reason that “the possibility of injury to health due to the added ingredient and in the quantity in which it is added, is plainly made an essential element of the prohibition.” It did not pass upon the constitutionality of the act, in view of its rulings on the act’s construction.

The case requires a construction of the Food and Drugs Act. Parts of the statute pertinent to this case are:

“SEC. 7. (34 Stat. 769.) That for the purposes of this act an article shall be deemed to be adulterated: . . .

“In the case of food:

“First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength. . . .

“Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

“Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health. . . .

* * * * *

“SEC. 10. (34 Stat. 771.) That any article of food, drug, or liquor that is adulterated or misbranded within the meaning of this act, and is being transported from one State, Territory, district, or insular possession to another for sale, or, having been transported, remains unloaded, unsold, or in original unbroken packages, . . . shall be liable to be proceeded against in any district court of the United States within the district where the same is found, and seized for confiscation by a process of libel for

condemnation. And if such article is condemned as being adulterated or misbranded, or of a poisonous or deleterious character, within the meaning of this act, the same shall be disposed of by destruction or sale, as the said court may direct."

Without reciting the testimony in detail it is enough to say that for the Government it tended to show that the added poisonous substances introduced into the flour by the Alsop Process, in the proportion of 1.8 parts per million, calculated as nitrogen, may be injurious to the health of those who use the flour in bread and other forms of food. On the other hand, the testimony for the respondent tended to show that the process does not add to the flour any poisonous or deleterious ingredients which can in any manner render it injurious to the health of a consumer. On these conflicting proofs the trial court was required to submit the case to the jury. That court, after stating the claims of the parties, the Government insisting that the flour was adulterated and should be condemned if it contained any added poisonous or other added deleterious ingredient of a kind or character which was capable of rendering such article injurious to health; the respondent contending that the flour should not be condemned unless the added substances were present in such quantity that the flour would be thereby rendered injurious to health, gave certain instructions to the jury. Part of the charge, excepted to by the respondent, reads:

"The fact that poisonous substances are to be found in the bodies of human beings, in the air, in potable water, and in articles of food, such as ham, bacon, fruits, certain vegetables, and other articles, does not justify the adding of the same or other poisonous substances to articles of food, such as flour, because the statute condemns the adding of poisonous substances. Therefore the court charges you that the Government need not prove that this flour or food-stuffs made by the use of it would injure

the health of any consumer. It is the character—not the quantity—of the added substance, if any, which is to determine this case.”

On the other hand the respondent insisted that the law is, and requested the court to charge the jury:

“That the burden is upon the prosecution to prove the truth of the charge in the libel, that by the treatment of the flour in question by the said Alsop Process it has been caused to contain added poisonous or other added deleterious ingredients, to-wit, nitrites or nitrite reacting material, which may render said flour injurious to health.

“And in this connection you are further instructed that it is incumbent upon the Government to prove that any such added poisonous or other added deleterious ingredients, if any contained in said flour, are of such a character and contained in the flour seized in such quantities, conditions and amounts as may render said flour injurious to health, and unless you find that all of such facts are so proven you cannot find against the claimant or condemn the flour in question under that charge in the libel, and if you fail to so find your verdict upon that count or charge in the libel must be in favor of the claimant or defendant.

* * * * *

“The law does not prohibit the adding of nitrites or nitrite reacting material to flour, and a jury cannot find for the Government or against the claimant, even if it be shown that nitrites or nitrite reacting material was added to the flour in question, unless they believe from a preponderance of the evidence that such addition, if any, rendered said flour injurious to the health of those who might consume the bread or other foods made from said flour.”

It is evident from the charge given and requests refused that the trial court regarded the addition to the flour of any poisonous ingredient as an offense within this statute, no

matter how small the quantity, and whether the flour might or might not injure the health of the consumer. At least such is the purport of the part of the charge above given, and if not correct, it was clearly misleading, notwithstanding other parts of the charge seem to recognize that in order to prove adulteration it is necessary to show that the flour may be injurious to health. The testimony shows that the effect of the Alsop Process is to bleach or whiten the flour and thus make it more marketable. If the testimony introduced on the part of the respondent was believed by the jury they must necessarily have found that the added ingredient, nitrites of a poisonous character, did not have the effect to make the consumption of the flour by any possibility injurious to the health of the consumer.

The statute upon its face shows, that the primary purpose of Congress was to prevent injury to the public health by the sale and transportation in interstate commerce of misbranded and adulterated foods. The legislation, as against misbranding, intended to make it possible that the consumer should know that an article purchased was what it purported to be; that it might be bought for what it really was and not upon misrepresentations as to character and quality. As against adulteration, the statute was intended to protect the public health from possible injury by adding to articles of food consumption poisonous and deleterious substances which might render such articles injurious to the health of consumers. If this purpose has been effected by plain and unambiguous language, and the act is within the power of Congress, the only duty of the courts is to give it effect according to its terms. This principle has been frequently recognized in this court. *Lake County v. Rollins*, 130 U. S. 662, 670:

"Where a law is expressed in plain and unambiguous terms, whether those terms are general or limited, the legislature should be intended to mean what they have

plainly expressed, and consequently no room is left for construction."

Hamilton v. Rathbone, 175 U. S. 414, 421:

"The cases are so numerous in this court to the effect that the province of construction lies wholly within the domain of ambiguity, that an extended review of them is quite unnecessary."

Furthermore all the words used in the statute should be given their proper signification and effect; *Washington Market Co. v. Hoffman*, 101 U. S. 112, 115:

"We are not at liberty," said Mr. Justice Strong, "to construe any statute so as to deny effect to any part of its language. It is a cardinal rule of statutory construction that significance and effect shall, if possible, be accorded to every word. As early as in Bacon's Abridgment, sec. 2, it was said that 'a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word, shall be superfluous, void, or insignificant.' This rule has been repeated innumerable times."

Applying these well-known principles in considering this statute, we find that the fifth subdivision of § 7 provides that food shall be deemed to be adulterated: "If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health." The instruction of the trial court permitted this statute to be read without the final and qualifying words, concerning the effect of the article upon health. If Congress had so intended the provision would have stopped with the condemnation of food which contained any added poisonous or other added deleterious ingredient. In other words, the first and familiar consideration is that, if Congress had intended to enact the statute in that form, it would have done so by choice of apt words to express that intent. It did not do so, but only condemned food containing an added poisonous or other added deleterious ingredient when such addition might render the article of food in-

jurious to the health. Congress has here, in this statute, with its penalties and forfeitures definitely outlined its inhibition against a particular class of adulteration.

It is not required that the article of food containing added poisonous or other added deleterious ingredients must affect the public health, and it is not incumbent upon the Government in order to make out a case to establish that fact. The act has placed upon the Government the burden of establishing, in order to secure a verdict of condemnation under this statute, that the added poisonous or deleterious substances must be such as may render such article injurious to health. The word "may" is here used in its ordinary and usual signification, there being nothing to show the intention of Congress to affix to it any other meaning. It is, says Webster, "an auxiliary verb, qualifying the meaning of another verb, by expressing ability, . . . , contingency or liability, or possibility or probability." In thus describing the offense Congress doubtless took into consideration that flour may be used in many ways, in bread, cake, gravy, broth, etc. It may be consumed, when prepared as a food, by the strong and the weak, the old and the young, the well and the sick; and it is intended that if any flour, because of any added poisonous or other deleterious ingredient, may possibly injure the health of any of these, it shall come within the ban of the statute. If it cannot by any possibility, when the facts are reasonably considered, injure the health of any consumer, such flour, though having a small addition of poisonous or deleterious ingredients, may not be condemned under the act. This is the plain meaning of the words and in our view needs no additional support by reference to reports and debates, although it may be said in passing that the meaning which we have given to the statute was well expressed by Mr. Heyburn, chairman of the committee having it in charge upon the floor of the Senate (Congressional Record, vol. 40, pt. 2, p. 1131):

"As to the use of the term 'poisonous,' let me state that everything which contains poison is not poison. It depends on the quantity and the combination. A very large majority of the things consumed by the human family contain, under analysis, some kind of poison, but it depends upon the combination, the chemical relation which it bears to the body in which it exists as to whether or not it is dangerous to take into the human system."

And such is the view of the English courts construing a similar statute. The English statute provides (§ 3, of the Sale of Food and Drugs Act, 1875):

"No person shall mix, color, . . . or order or permit any other person to mix, color, . . . any article of food with any ingredient or material so as to render the article injurious to health."

That section was construed in *Hull v. Horsnell*, 68 J. P. 591, which involved preserved peas, the color of which had been retained by the addition of sulphate of copper, charged to be a poisonous substance and injurious to health. There was a conviction in the lower court. Lord Alverstone, C. J., in reversing and remitting the case on appeal, said:

"In my opinion, if the justices convicted the appellant of an offence under § 3 of the Sale of Food and Drugs Act, 1875, on the ground that the ingredient mixed with the article of food was injurious to health,—that the sulphate of copper was injurious to health, and not on the ground that the peas by reason of the addition of sulphate of copper were rendered injurious to health, the conviction is clearly wrong. To constitute an offence under the latter part of § 3 the article of food sold must, by the addition of an ingredient, be rendered injurious to health. All the circumstances must be examined to see whether the article of food has been rendered injurious to health."

We reach the conclusion that the Circuit Court of Appeals did not err in reversing the judgment of the Dis-

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trict Court for error in its charge with reference to subdivision five of § 7.

The Circuit Court of Appeals reached the conclusion that there was no substantial proof to warrant the conviction under the fourth subdivision of § 7, that the flour was mixed, colored and stained in a manner whereby damage and inferiority was concealed. As the case is to be retried to a jury, we say nothing upon this point.

As to the objection on constitutional grounds, it is not contended that the statute as construed by the Circuit Court of Appeals and this court is unconstitutional.

It follows that the judgment of the Circuit Court of Appeals reversing the judgment of the District Court must be affirmed, and the case remanded to the District Court for a new trial.

Affirmed.